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VOL. XXIII, NO. 4 SEPTEMBER, 1922

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TEACHERS COLLEGE RECORD

VOL. XXIII SEPTEMBER, 1922 No. 4

RELIGIOUS EDUCATION AND POLITICAL CONSCIENCE

By GEORGE A. COE

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That the health of popular government depends upon the conscience as well as the intelligence of citizens, and that state schools exist for the purpose of maintaining the ethical as well as the intellectual conditions of good citizenship, are major premises in practically all American thinking upon education. But the obviousness and the habitualness of these assumptions may conceal from us the significance of what they imply, or do not imply. Theoretically, it seems, the state is an ethical being that maintains its own continuity by rearing the young in schools. What views of its own moral life, then, does the state incorporate in school laws and regulations? Are public-school teachers and administrators trained to render, and do they render, expert service in the field of political morality? What sort of political conscience, as a matter of fact, are they in position to develop in the future citizen?

These questions concern the church in its function as educator not less than the public school. For the church, too, deals with at least some of the ethical conditions of good citizenship. It seeks, in fact, to develop an all-inclusive conscience. What, then, is or should be the distinctive contribution of religious educaton to the morality of the state? It is entirely obvious that much of the moral teaching of the public schools is reinforced in the church schools, both by reiteration, and by diversification and deepening of motives. Anyone who is familiar with the religious-education reforms that set in about two decades ago knows, moreover, that attention is turning more and more to social needs and problems, and that the proportion of moral action to moral platitude is increasing. When the Webb-Kenyon child-labor bill was pending

in the House of Representatives, a Sunday-school class of boys sent to the congressman from their district a request that he support the measure. At the beginning of this century probably no Sunday school studied such matters at all, but today topics like this seem to be entirely familiar in the church.

One peculiar contribution of the church schools to political morality concerns what is known as "Americanization." More and more the teachers of religion are discovering the significance of the term "neighbor." There was a time—not long ago, in fact—when interest in the story of Jonah had its focus in the digestive tract of an imaginary sea monster; today in the foreground of the story stands Jonah's race prejudice, which God is represented as endeavoring to overcome.

But all these contributions of the churches to political health lie near the surface, while certain of the deeper issues are untouched, doubtless under the theory that they are the especial concern of the state schools. When we turn to the state schools, however, we find as marked silence upon some of these issues as in the churches, and a doubt begins to insinuate itself as to whether political morality, in some of its fundamental aspects, is not altogether neglected in our American system of education. There is at least one necessary objective in the training of citizens which the state schools are certainly not in a position to pursue vigorously. I mean the development of free judgment upon the state itself.

If we are to have a progressive, free society, we must somehow counteract the universal tendency of institutions to mechanize life and prevent variation; we must train the individual not to take customs, even good customs, as finalities; we must foster the habit of freely judging society, the state included, from ethical standpoints. This implies more than alertness to prevent official corruption, more than dispassionate choice between political parties, more than supporting good government in the ordinary sense of this term. For we can possess all these tendencies and still be so dogmatically orthodox in our politics, so unready to examine the presuppositions of our social order, as to be incapable of understanding new social crises, and incapable consequently of finding orderly methods for social changes which new needs render inevitable.

As yet the state has not found any adequate way to develop through the schools habits of such free social criticism. Indeed,

current effort runs almost entirely in the opposite direction. To make pupils believe in our country, not as a noble achievement which opens the way to something still more noble, but as something good enough; to close the mind against being taught anything by other political precedents and experiments; to make pupils as contented as possible with our industrial order; to maintain the social *status quo* rather than to develop intelligent ethical judgment upon it—is not this the trend of recent events? Does not the following statement by James Harvey Robinson come uncomfortably close to the truth not only about our colleges but also about our primary and secondary schools?

"How indeed can a teacher be expected to explain to the sons and daughters of business men, politicians, doctors, lawyers, and clergymen—all pledged to the maintenance of the sources of their livelihood—the actual nature of business enterprise as now practiced, the prevailing methods of legislative bodies and courts, and the conduct of foreign affairs? Think of a teacher in the public schools recounting the more illuminating facts about the municipal government under which he lives, with due attention to graft and jobs! So, courses in government, political economy, sociology, and ethics confine themselves to inoffensive generalizations, harmless details of organization, and the commonplaces of routine morality, for only in that way can they escape being controversial. . . . However we may feel on this important matter, we must all agree that the aim of education for citizenship as now conceived is a preparation for the same old citizenship which has so far failed to eliminate the shocking hazards and crying injustices of our social and political life. For we sedulously inculcate in the coming generation exactly the same illusions and the same ill-placed confidence in existing institutions and prevailing notions that have brought the world to the pass in which we find it." [1]

Does this seem like a severe judgment? Yet the principle which Dr. Robinson criticizes appears to be approved by Professor David Snedden in his articles on the duties of the high-school teacher of social subjects. The right to hold in private such opinions as one sees fit is not to be abridged, Professor Snedden says, but one's teaching "must conform to the will of the majority and . . . uphold the social order under such democratic auspices as now represent

[1] *The Mind in the Making.* New York: Harper Brothers, 1921, pp. 21 ff.

the democratically expressed will of the majority."[2] This position having been challenged by Professor Davidson, who asserts that the teacher is the servant of the truth, and not of the majority,[3] Professor Snedden makes his position still more explicit, thus: "Ignoring recently acquired sinister implications in the word, it can be replied that every public-school teacher is and ought to be a 'hired propagandist' of the best moral and civic values that we know today—and by 'we' is meant of course the American people directed in truly democratic fashion, as to overt action, by that majority to whom we have, at least temporarily, entrusted directive responsibilities."[4] Professor Davidson's rejoinder appears in *School and Society* for April 9, 1921, on page 445. I am not prepared to say how far educators agree with Professor Snedden as to the duties of teachers, nor do I care to examine the soundness of his reasoning. I have quoted him primarily for the purpose of indicating how difficult it would be, in the nature of the case, for the state to inculcate criticism of itself through its own schools.

The difficulty may be illustrated by one or two concrete cases. It is a matter of common knowledge that for a considerable period the State of Pennsylvania, acting through its police and its courts, denied to citizens in the western part of the state certain ordinary civil rights. That is, the state itself broke the law not once or twice, but as a policy. Now, suppose that a teacher of civics in a Pittsburgh high school should lead his pupils to study these acts and this policy in the light of the United States Constitution, and in the light of the struggle of our forefathers to achieve civil liberties! Notice, now, that the chief investigation of these conditions and the chief voice calling for a return to constitutional government proceeded from ecclesiastical sources.

Or take the situation in the State of New York when the Lusk bills were pending in the legislature, or the plight of public-school teachers now that these bills have become law. Is it reasonable to expect teachers openly to oppose vicious bills that may become law, or to reveal to future voters the faults of laws under which the teachers themselves are employed? We must not blame all teachers who keep silence; we must not condemn the public-school system; but we must open our eyes to the fact that the state may

[2] *School and Society*, Feb. 12, 1921, p. 191.
[3] *Ibid.*, March 5, 1921, p. 296.
[4] *Ibid.*, March 19, 1921, p. 355.

and sometimes does close the channels of necessary criticism of itself. The training of our young people for judging such things as Lusk laws must come, in large part, from outside the public schools of the State of New York. If the movement of a very small straw can show which way a light breeze is blowing, one may be justified in noting the fact that when the Lusk bills were before the legislature a Sunday-school class sent to Albany a protest against them.

But someone may reply, and many will assume, that a sufficiently wise conscience upon such public issues can be developed without directly referring to the issues themselves. If we teach history and the general principles of civics, need we pay any attention to the good and the evil in present society? I would answer thus: First, upon what theory of transfer of training does this view rely? Second, what method of teaching history does it assume? Third, has it taken into account the fact that newspapers and other agencies are teaching social principles to the pupils concurrently with the school classes in history and civics? Fourth, is the school quite free to choose as materials the parts of history and of general political thinking that bear most directly upon vital issues?

About sixteen years ago Professor W. G. Sumner wrote as follows: "We seem likely to have orthodox history (especially of our own country), political science, political economy, and sociology before long. It will be defined by school boards who are partly politicians. As fast as physics, chemistry, geology, bookkeeping, and the rest come into conflict with interests, and put forth results which have a pecuniary effect—which is sure to happen in the not remote future—then the popular orthodoxy will be extended to them, and it will be enforced as 'democractic.'"[5] We witness today a partial fulfilment of the first part of this prophecy, not merely in the grotesque attempt of one city government to censor text-books of history, but also in a wide demand that history and civics be so taught that the pupils of the public schools shall be indoctrinated in the political and economic orthodoxy of the day.

Even if the accepted political and economic doctrines of today be true and wise, we may not therefore assume that orthodoxy in this sphere is ever a safe thing. For here we deal with authority that wields other weapons than those of science and morals; the

[5] Boston: Ginn and Co., 1906, p. 632.

state uses compulsion, and it may by legal means prevent the schools from applying scientific and moral tests to its own conduct. In the interest of the state itself, then, education must somewhere, somehow, develop in citizens the habit of weighing social issues, even fundamental ones. The state whose power is wielded by a majority, not by an impartial humane reason, must not do the citizen's thinking for him. Therefore the public schools, always in danger of becoming an agent for the maintenance of the *status quo*, need to be supplemented by a schooling that is free from political control, and that represents a super-political standpoint in morals.

The question which I have now raised is made necessary not merely by recent political events, but also by a certain drift in the social philosophy of several educationists. The reaction from individualistic to social ends in education, necessary as it is, tends, on the whole, to elevate the authority of the state to a new position in the theory of the public schools. You will discern this not only in Snedden, whom I have quoted, but also in Cubberley's analysis of the educational movement in his *Public Education in the United States*,[6] which is a sociological history of our school system. The new social ends of education are here treated substantially as ends prescribed to the schools by the state for the ends of the state with a capital S. What is lacking is the idea that criticism and improvement of the state's purposes are likewise a necessary objective.

Oddly enough, this tendency is sometimes reinforced by insistence upon ethical aims in education. Take, for example, Bagley's exaltation of the sense of duty. Much that he says could be taken as a text for my present remarks, for I am speaking of "the moral obligation to be intelligent" concerning social issues, and about the obligation of social improvement. I might add that the freedom of thinking which is necessary for social self-criticism, like other phases of freedom, is, as he says, not "in the market at a lower price in the scale of human values than discipline, sacrifice, and an arduous apprenticeship of which one important element is obedience."[7] But a sense of duty is not a single thing, everywhere and always of the same value. Any political or religious system,

[6] p. 317.

[7] See his articles in *School and Home Education*, 1915, 1916; also "The Place of Duty and Discipline in a Democratic Scheme of Education," TEACHERS COLLEGE RECORD, Vol. XXIX, pp. 419–430, November 1918.

good or bad, can by educational processes develop dutiful loyalty to itself. This is, indeed, the regular method whereby outworn customs prolong their rule. Is there anything in Bagley's conception of duty, in fact, which would have been objectionable to Prussia of the Hohenzollerns; anything that would be unwelcome to our own social conservatives who are willing to perpetuate the present inequality between classes? On the whole, the present demand for a duty-pedagogy plays into the hands of the political orthodoxy of the moment, which would gladly use the schools to perpetuate its authority. Another writer, Yocum, actually discusses the topic, "What Democracy Should Compel Through Religion." [8] He seriously raises several questions like this: "If . . . the 'older moralities' are essential to the well-being and continued existence of democracy, should not religious cults be prohibited by national law from antagonizing them?" Thus the state, Hobbes's *Leviathan*, looms as sovereign not only of territory but also of conscience.

You are asking, of course, whether existing religious organizations are competent to furnish the needed supplement to the public schools in the training of citizens. That church schools are not doing it does not argue that they might not undertake it. One of the ancient traditions of Christianity certainly runs to the effect that there is a higher authority than the state, and the Jewish-Christian ideal of a really brotherly society furnishes perennial justification, and often incitement, for judging the political and economic organization. Granted that religious institutions themselves tend to become mechanized, conventional, repressive, nevertheless the only considerable teaching bodies which are committed to the conviction that there is a super-political law are those of religion.

There are signs, too, that organized religion is not altogether unready to apply the idea in our modern world. To say nothing of the Quakers, who by quiet persistence have wrung exceptional immunities from the state, it is worth noting that Catholic forces are moving toward the reorganization of society upon a basis other than the capitalistic. One may pause, too, to consider the educational possibilities opened to our view by the Steel Strike Report. Here is displayed a critical interest at once scientific and religious, not merely in what is usually called welfare, but also in social organization, both industrial and political. What is to hinder the

[8] *Religious Education*, Vol. XIV, pp. 180–189, 1919.

schools of the churches from leading the young to look similarly with unclouded eyes at the actual processes and results of our social order, and to judge it by its fruits?

"Don't do it! The young are too much unsettled already," pleaded a Sunday-school worker. But if we really—that is, practically—believe in the idea of a brotherly society, must we not do a deal of unsettling, and must we not do it with the young? To question the validity of the assumptions of our defective social order only after they have become firmly rooted in the minds of the young is to commit educational folly.

Therefore, to the question, What specific contribution to training for citizenship have we a right to expect from religious education? the answer is: This above all—Habituating the young to judge all social relations, processes, and institutions, the state included, from the standpoint of the command, "Thou shalt love thy neighbor as thyself."

THE WOMEN'S FORUM

By NATALIE THORNTON
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INTRODUCTION

The accompanying study is one of a series made during the year 1921–1922 in Teachers College by a group of advisers of women and girls in a course designed to study the problems of advisers of young women in college and normal school and of girls in high school. The educational possibilities in the field of the adviser or dean of women have in the past received scant attention. The preceptress of the last century has by slow but certain stages evolved into the dean or adviser of the present generation, but the nature of the duties of these officials has changed very little in a century. The preceptress was regarded as a more or less necessary person, whose chief function was to look after the manners and morals of the girls of a school, and to keep a watchful eye out for the reputation of the school and the protection of its property. Preceptresses and deans in the past were autocrats of the blue-blooded type. They set up standards of conduct and types of "manners" for this, that, and the other occasion which had to be assiduously followed by the young "ladies" of the school.

The democratization of educational institutions demands reconsideration of the functions of all officials, and of the needs of the young people. The autocrat has no place in a democratized school. The adviser must become the leader rather than the driver of young people during those years when they have to make so many personal adjustments to the social life of high school, and the larger life of college and community. Working, as she does, with the social instincts and impulses of the adolescent period, her field lies outside the classroom. She has a body of subject matter to teach which needs to be collected and organized as carefully as the content of any academic subject; and there are methods of teaching this extra-curricular subject matter which should be made consistent with the best methods of procedure within the classroom.

The Forum is recommended as one of several acceptable ways of teaching extra-curricular subject matter. The subject matter is immediately related to the needs of the students, and the methods are those of project solving, in that the work may be initiated by the learners, or accepted by them, and organized and evaluated by them.

Miss Thornton's article contains many suggestions for the teaching of certain phases of extra-curricular subject matter through the Forum. It is intended to offer suggestions rather than a prescribed curriculum. It has been based upon the needs of young women of one normal school, as discovered through several years' work with them; and it has been written as a reinterpretation of their needs.

ROMIETT STEVENS
Associate Professor of Education
Teachers College

Although a dean of women inevitably falls short of her ideals in what she actually accomplishes for the women of her school, she keeps always before her as a goal—ideal womanhood. Just as Emerson pleads for "man thinking" or complete manhood for the American scholar, so the dean works towards the end that every graduate shall be, first of all, a woman in possession of those qualities of mind, body, and spirit that make complete womanhood. This well-rounded womanly woman has always been a desideratum, but never more so than today. Yesterday her activities were principally in the home where she served as mother, spinster aunt, or domestic. Today if she is not consciously educating her own children for the new broad citizenship which democracy is demanding, she is finding a field for practical citizenship in an industry, a business, or a profession. Today the world all about her is her home. She cannot escape civic responsibility if she would. An immediate problem, therefore, for a leader of young women is: How can we make her the best sort of citizen, at the same time conserving the finest qualities of womanhood?

We believe that the training for good citizenship and for complete womanhood are two sides of the same process, and that a responsibility for making womanly citizens falls upon the school. The prescribed curriculum alone cannot fully educate its students in citizenship, since what a woman is in her leisure hours largely determines what she is in her relation to her fellows. It is the dean's work, therefore, to provide for the leisure hours of the students and to teach such extra-curricular subjects as social usages, social initiative, social coöperation, good uses of leisure time, and other desired qualities of good citizenship.

These phases of teaching may be accomplished in any one of several ways. There may be group meetings in the dormitories, "fireplace talks," as one school calls them; there may be organized courses with credit for freshmen and seniors; there may be talks for the whole student body given regularly by the dean and specialists chosen by her. All these plans, however, come more or less under the method of giving information autocratically as the preceptress was wont to do it.

There is a more democratized method, however,—the women's forum. This article attempts to show that it is the plan best adapted to the present demands of democracy. The forum may be a distinct organization, or a department of the student government associa-

tion. In either case, it will have student officers, and programs planned through the coöperation of the students and the dean. Although it is advisable to have most of the subjects treated by the dean and specialists, there is ample opportunity for student participation through demonstrations and discussion. Furthermore, the dean may well help the more mature students to give some of the talks rather than to be the spokesman herself. The advantages of the forum may be briefly summed up as follows:

1. The forum offers a practical channel for bringing extra-curricular subject matter before all the students.
2. It also offers opportunity for student activity concerning affairs which touch the student body most closely.
3. It enables the students to raise their own problems and to contribute towards their solution.
4. Through the close coöperation between the adviser and the students, the adviser's opinion regarding subjects under discussion is frequently sought by the students. This is much more effective than the method by which the adviser issues mandates.
5. The forum develops a real sense of group consciousness among the students.
6. It serves to arouse public opinion in the student body.
7. In offering opportunity for discussion, it offers training in initiative, poise, the give and take involved in the challenge of debates or discussion, and in coöperation.
8. Through the impersonal discussions of the forum, many delicate questions of social usage are settled, thus obviating the need of difficult personal interviews between the adviser and students.
9. The forum often opens the way for an individual student to voluntarily seek an interview with the adviser for personal help.
10. It is often advisable to have two distinct forums, one for first and second-year students whose needs are largely those of adjustment to the life of the college; and one for upper-class students whose needs are those of adjustment to the social, professional or industrial life beyond the college.

In order to get something more than a personal view of the forum, the following questionnaire was sent out in October, 1921, to twenty-two normal schools, colleges, and universities.

To Deans of Women:

A group of advisers of women and girls at Teachers College, Columbia University, is making a study of ways and means of getting before the students such sub-

jects as are not generally included in the school curriculum. We are interested particularly in The Women's Forum as one method.

Any information which you can furnish on this problem will be deeply appreciated.

1. Name of School and Address:
2. Number of Women Students:
3. Have you any definite organization among the women which presents subjects not in the curriculum, such as etiquette, thrift and budget making, vocational information, personal hygiene, use of leisure time, citizenship, good taste in dress, etc., etc.?
4. If so, what is the name of the organization?
5. What are the details of its administration? Has it a constitution?
6. What subjects are included in its program?
7. Who presents them? The dean, specialists, or students?
8. If you have no organization, how is such information given to the students?
9. Any inclosures of printed programs, constitutions, etc., will be appreciated.

Seventeen replies to this questionnaire were received—five from normal schools, nine from colleges, and three from universities. Of this number, eight reported that they have no definite organization for presenting extra-curricular subject matter. They present the subjects by means of lectures, private conferences, special courses with credit, occasional talks, weekly addresses, and coöperation with the departments of home economics, physical education, and vocational information. The shortcomings of these methods appear to be that all the students are not reached, that all the subjects do not receive attention, and that little or no opportunity is given for student planning and participation.

On the other hand, nine spoke enthusiastically of definite organizations which operate under a variety of names which are here given with the number of institutions reporting their use: The Students' Forum (1), The Girls' Forum (1), The Social Forum (1), Student Government Association (2), Women's Self-Government Association (1), College Government Association (1),.Community Meeting (2), and Women's League (2).

The details of organization vary in the different schools as much as do the names. In one school, forum attendance is required of all freshmen; in five schools, attendance is required of all; in two, attendance requirements are not stated. In seven schools, the so-called forum meetings seem to be identical with house meetings in the residence halls. Attendance is required, but of course, the girls living outside the residence halls receive no benefit from these meetings. It is the old story again of the dormitory girl being the be-

loved daughter, and the non-dormitory girl the step-daughter. The forum is the most democratic method of bringing the two together.

Eleven schools reported that the students assist in planning the forum programs, or the talks in those schools where there is no forum. In fifteen schools the dean presents some of the subjects; in fourteen, specialists give others; and in only eight is provision made for student discussion.

The subjects included in the program of extra-curricular activities as reported by the seventeen schools are given below in the order of their frequency. One school did not specify subjects, but stated that practically all except medical and academic subjects were discussed. One, therefore, may be added to each of these figures, if desired.

Health	15	Why Students Fail	1
Etiquette	13	How to Memorize	1
Dress; Good Taste	9	Dancing	1
Thrift	9	Social Hygiene	1
Money Budget	8	Individual Program Making	1
Vocational Information	8	How to Read	1
Use of Leisure	7	Use of Library	1
Citizenship	7	Parliamentary Law	1
Time Budget	5	Principles of Government	1
How to Study	4	Respect for Property	1
Community Life	3	Conversation	1
Traditions of School	3	Banking	1
Relative Importance of College Activities	2	Place of College Work in After-College Life	1
The Ideal Roomer	1	Subjects of Interest to Those in the Teaching Profession	1
Rating of Teachers	1		

TOPICS FOR FORUM USE

Using the suggestions obtained from the questionnaire as a basis, and adding to these the experiences of the group of students at Teachers College who are now studying the problem, the following general topics, each with many subdivisions, are suggested as possible subjects for forum discussions. There are many instances where the subject matter involved has been so well taught by the home or in the earlier years of school that there is no need of calling attention to it in college. On the other hand, unfortunately, there are some students, even in a college, who have yet to learn some of the most elementary lessons in social behavior. There was a day when the refinements of living possessed by the majority of students furnished the leaven which brought up the standards of those less fortunate;

but nowadays it is often found necessary to teach a large majority of students entering normal school or college the simplest elements of behavior involved in living together in a social order. There has been no attempt made to prevent overlapping in these suggestions. In many instances the same subject is given more than once under different titles to show what can be done with the wording of subjects.

1. Health

Elimination of fatigue
Personal hygiene
  Toilet accessories
  Care of the hair
  Bathing
  Care of teeth
  Sleep
  Diet
  Elimination
  Menstruation
Setting-up exercises
Posture
Dress and shoes
Fresh air
Walking
Mental hygiene
Social hygiene
Don't worry

2. Social Conventions

History of social customs
Principles underlying social conventions
How to feel at home on all occasions
Etiquette
  Of visiting
  Toward men
  Of automobiles
  Of introductions
  In the dining room
  At the dance
  Of dress
  Of telephoning
  Of calling
  Of different kinds of social occasions
  In public places
    on the street
    in the post office
    in railway stations
    in church
    at the theatre
  Of traveling
  The chaperon

3. Good Taste

In dress
In hair dressing
In the decoration of a room
"My room and I"
Principles of interior decorating
Good and bad taste in rooms
The house beautiful
What shall I wear?

4. Play or the Circle of Recreation and Creation

Use of leisure time
How and what to play
Hiking
Games

5. College Adjustments

How to fill out printed slips
Interpretation of directions
Finding my way around the campus
Who's Who on the faculty
What college means
Characteristics of the ideal roomer
Personal habits of study
A college citizen
How to use the library
Obligations involved as sharers of the college community life
Rating of teachers
Getting the most out of college
A time budget
Traditions and history of school
Why students fail

How to memorize
Orientation
Subjects of interest to women in the teaching profession

6. Money Matters

Thrift
Budget making
Where did that dollar go?
Business for women
Banking
  How to open an account
  How to make out checks
  How to indorse a check
  How to keep accounts accurately
  How to stop payment on lost checks
Getting the most out of a dollar.

7. Appreciations

How to listen to music
Pictures to live with
How to read
What to read
The meaning of the slogan: A book a week

8. Friendship

The meaning of friendship
Friendship versus the church
How to make and keep friends

9. Conversation

What constitutes a good conversationalist?
Truth — anecdote — humor — vocabulary — voice

10. Ideals

Biographies
Adaptability
Courtesy
Personality
Poise

11. Citizenship

Respect for public property
Respect for personal property of others
Group life
Social consciousness
Who is my neighbor?
Knowledge of large organizations such as The Red Cross, The Consumers League, The League of Women Voters
Local charities
Citizenship
What shall I do with my vote?
Current events
Parliamentary law
Principles of government

12. Vocational Information

After school—what?
Vocational information
Women in business; in professions
The part college plays in after-college work
How shall I earn my living?
What can I best do?
Avocational guidance
Occupations for women
Available fellowships and scholarships
Post-graduate study

It must be borne in mind, however, that a forum discussion does not grow of its own accord. The ground must be carefully prepared and the seeds of discussion sown broadcast, with intelligent forethought. In other words, discussion must be prepared for and often carefully organized.

Certain constructive measures which may be taken to insure discussion are the following:

1. The subjects should be well posted in advance and stated with some regard to the psychology of the salesmanship of ideas.

2. A room or corner in the library should be set apart for the forum library, where all the available books and magazines dealing with the talks of the month should be reserved.

3. Mimeographed or printed copies of suggested topics for discussion should be in the hands of every student.

4. If the dean is fortunate enough to have all the freshmen or senior women in special courses studying extra-curricular subjects, she ought to find them alert co-workers in making the forum a living thing.

5. The old device of the question box is often effective.

6. A student committee, the personnel of which is changed for each meeting, should meet before the meeting of the forum to discuss the subject, and talk over the questions the student body wants answered. These questions may then be numbered and assigned to members of the committee whose tasks it will be to ask them in the forum. This group should be drilled regarding the proper posture in sitting, rising, standing, addressing the chair, and in clearly enunciating their questions.

It is impossible to illustrate how each of the subjects may be used at a forum meeting. The material used must necessarily differ with every school and probably with every presentation.

For the subject of social customs, a syllabus prepared by a committee of students could be in the hands of every student before the subject is presented at the forum. A few suggested syllabi, easily compiled by students, are here given.

Syllabi for Social Customs

I. Origin and Philosophy of Manners and Conventions
   1. What is the difference between manners and good form?
   2. Give the origin of the word "etiquette."
   3. Give the origin of the word "convention."
   4. Give the origin of the word "gentleman."
   5. Illustrate how good form is a changing, not a static thing.
   6. What social customs are based upon customs of chivalry?
   7. What were some of the principles and practices of courtesy during the Renaissance?
   8. What is the difference between manners and morals?
   9. What ideas does Christianity add to chivalry?
   10. Explain in relation to manners: "Men care for the 'what' and women for the 'how.'"
   11. Make a collection of apt sentences about manners such as, "If the word 'art' were understood, it would suffice that every action of life should be artistically performed."

"Manners are the happy ways of doing things."
Discuss the above and those you bring in.

12. Are conventions needed today? Give reasons for your answer.

II. Introductions

1. Distinguish between the art of introducing and merely going through the correct form.
2. Which are the correct forms?

Let me present	May I present
Allow me to introduce	Mother, this is my friend,—
Meet Mr. A —	I would like you to meet

3. On every occasion is an introduction necessary to speaking?
4. Who is presented in these groups?—men, women, young women, older women, unmarried women, host, guest of honor, President of the United States.
5. When just the names are spoken in introducing, whose name is given first?
6. If the name is not heard, what should one do?
7. How should an introduction be acknowledged?
8. What may the person introducing do to prevent that awkward pause that often follows an introduction?

III. Etiquette of the Dining Room

Discuss under the following heads:

1. Position at the table
   a. Distance from the table.
   b. Posture.
   c. Seating of guest of honor.
   d. Poise—handling of silver, etc.
   e. Leaning back in the chair.
2. Napkin
   a. Position on the lap.
   b. Its disposition at the end of the meal.
3. Knife and fork: Do's and Don'ts
   a. Do not use as masher or shover.
   b. Do not remove from plate when passing plate.
   c. Do not poise in air.
   d. Do not hang on edge of plate.
   e. Do not place knife in mouth.
   f. Do not have tines of fork up when cutting.
   g. Do not place finger on tines or blade.
   h. Do not grasp tightly.
   i. Do not stick elbow out in carrying fork to mouth.
   j. Leave parallel on plate at close of meal.
   k. Have relaxed hold when carrying to mouth.
4. Spoon
   a. Never leave in cup.
   b. Sip from the side of the bowl, not from the end.

5. Miscellaneous
   a. Break and butter small pieces of bread.
   b. Put salt on plate, not on table cloth.
   c. Hold glass of water near bottom.
   d. Do not tip soup plate toward you.
   e. Bouillon may be sipped from cup.
   f. Do not pick up crumbs from table.
   g. When finished, do not push plate back.
6. Ways of eating certain foods
7. Ways of serving food

IV. Social Occasions: Teas, receptions, dances, musicales, dinners, luncheons

1. What invitations require answers?
2. When may a reply be omitted?
3. How should an invitation be answered?
4. When should guests arrive?
5. When should a guest speak to the hostess?
6. Should a guest express her appreciation before or after putting on her wraps?
7. At what occasions should the guests stand?
8. When should hats be worn? not worn?
9. When should cards be left?
10. How often may one dance with the same man?
11. What dance positions are recommended by the dancing masters' associations?
12. Should a young woman walk across a dance floor alone?
13. What constitutes a good hostess? a good guest?

V. In Public Places: In the post-office, in stations, on the street, in the theatre, in church

1. If a number of people are waiting at a ticket or post-office window, what do you do when you arrive?
2. What distinguishes the well-bred person from the ill-bred one when buying from a window?
3. Does a woman take a man's arm on the street?
4. Does a man guide a woman by the elbow?
5. Does a man walk beside or between two women?
6. If you meet a friend on the street and wish to visit, what should you do?
7. What is the difference between reserve and haughtiness toward strangers?
8. What are the rules of courtesy in a street car?
9. What is the social obligation to arrive on time at the concert and the theatre?
10. What is the inviolable rule of behavior during any kind of performance?
11. Is it necessary to remove a small hat at an entertainment?
12. What observances should one follow when visiting a church not one's own?

VI. Dress

1. What are some of the artistic principles underlying dress? the ethical principles?
2. History of dress.
3. Granting that appropriateness is one principle of good taste in dress, correctly group the following articles for each of the occasions listed at the right:

satin pumps	school
patent leather pumps	picnic
heavy comfortable shoes	evening dinner
light weight oxfords or boots	dance
decolleté gown	reception
shirt waist and skirt	afternoon tea
sweater	luncheon
middy	
tam	
toque	
picture hat	
white gloves	
silk dress	

VII. The Chaperon

1. How did the chaperon idea originate?
2. Why do we have one today?
3. What courtesies are due her at a dance? at the theatre? on a picnic?

VIII. Etiquette of Traveling

1. What are the "traffic laws" in entering a train or boarding a boat?
2. What should be done with bags?
3. Have you a right to more than one seat?
4. Is there any etiquette about opening windows?
5. What are the "courtesies of the road"?
6. Can we make any suggestions about conversation?
7. What qualities make one a desirable traveling companion?
8. What are the little and big things that annoy you when you are traveling in a Pullman car?
9. Discuss tipping.
10. What is the proper way of registering in a hotel?
11. Give the principal rules for conduct in a hotel.
12. Discuss the connections between the following: composure, comfort, consideration, restlessness.

IX. Etiquette of Visiting

1. What kind of people do you like to have visit you?
2. Who pays for transportation, the hostess or the guest?
3. What care of one's room devolves upon the guest?
4. Who makes the first move to retire for the night?
5. Where do initiative, resourcefulness, and thoughtfulness come in?

6. What is a "bread and butter" letter?
7. When a guest arrives, what happens to the "habits of the household"?
8. Give a picture of the ideal guest.

X. Manners

Various essayists have given the following qualities as bases of good manners:

self-reliance	deference
lack of hurry	intellectual perception
sincerity	love of beauty
self-control	love
poise	protection of society
thoughtfulness for others	reason
self-respect	good-will
respect for personality of others	tact
unobtrusiveness	cheerfulness and good-nature
making all comings together easier	

1. Which do you think are the most important? Why?
2. Which of these qualities do the following illustrate or break? Explain how.
   a. Interrupting when some one is speaking.
   b. Wearing too low an evening gown.
   c. Eating soup noisily.
   d. Spooning.
   e. Reading other people's letters.
   f. Chewing gum.
   g. Chaperonage.
   h. Not accepting help from strangers.
   i. Leaving spoon in cup.
   j. Being obsequious to distinguished people.
   k. Being overcritical and fault finding.
   l. Talking too little in social gatherings; talking too much.
   m. Whispering in company.
   n. Treatment of servants or public servants or clerks, etc.
3. List as many cases of good and bad manners as you can think of and discuss them in the light of the principles given above.

DEMONSTRATIONS

Many of the discussions listed above should be supplemented by demonstrations or dramatizations, which help in the following ways:

1. They hold the interest of the students and strengthen the talk or discussion.

2. They allow more students to participate actively in the meeting. Such topics as the following should invariably be accompanied

by demonstrations: Etiquette—introductions, table manners, and social occasions, such as the tea, the dance, the reception; setting-up exercises; hair dressing; good taste in rooms; a fashion show; and pictures.

Unless the work of the forum carries over into the lives of the students, its real purpose has not been accomplished. Some sort of follow-up work which will help the student to make the subject her own should be definitely planned.

TYPES OF FOLLOW-UP WORK

1. "Do's and Dont's in Good Form" to be distributed after the talk on etiquette.
2. Tables in the dining room may pay fines for breaches of table etiquette, the fines going for some shared social purpose.
3. Observation of some special point during an entire week, such as "Walking Week," "Better Manners Week," etc.
4. Distribution of pamphlets issued by the Dancing Masters' Association after a demonstration in good dancing.
5. The holding of special office hours by the dean when the students may interview her on any point suggested by a forum discussion.
6. Use of Health Inventory (Y.W.C.A.) or Health Chart (Camp Fire Girls).
7. Individual time schedule. The following is a suggestive sample.

OHIO WESLEYAN UNIVERSITY STUDENT'S TIME SCHEDULE FOR THE 144 HOURS OF SIX WORKING DAYS OF THE WEEK

Name.....Date.....

Age.....Rank.....Group.....

		Hours	
College Duties	Recitation	——	
	Study	——	
	Laboratory	——	
	Chapel	——	
	Transcript, Bijou, etc.	——	
	Literary Societies	——	
	Gymnasium	——	
	Transfers	——	——

Care of Body	Sleeping	——	
	Eating	——	
	Toilet	——	
	Extra Exercise	——	——
Incidentals	Reading	——	
	Work for Wages	——	
	Committee Work	——	
	Choir Practice	——	
	Y. W. C. A.	——	
	Athletics	——	
	Social Life	——	
	Entertainments	——	
	Mending	——	
	Shopping	——	
	Cleaning	——	——
Hours Unaccounted for		——	
	Total		144

.....Dean

This blank is filled out by every student after the talk on "The Use of Leisure Time." It is not a binding schedule, but simply an attempt to impress upon the girl the value of time, and the relative values of a day's activities.

8. Providing situations which give opportunity for the students to practice the points presented in the forum. If the students have opportunities for actually participating in situations which are discussed at the forum, there is more probability that these discussions will become a part of the lives of the students. The principle of learning which demands a situation for a response, and satisfaction associated with the response, is too familiar to need exposition here. This principle, however, is the basis of all follow-up work and the secret of the success of any forum. The following examples of this kind of follow-up work have proved valuable:

INVITATIONS

The dean may entertain all the girls of the school in groups of from twenty to forty. An invitation in proper form, requiring a reply, is sent to each girl.

TEAS

Student teas. Dean's teas.

RECEPTIONS AND PARTIES

The girls living at home may entertain their parents at a school reception.

The girls of one dormitory may entertain those of another dormitory. This

may be done successfully by putting every girl on a committee. An invitation committee writes individual invitations to every girl in the dormitory being entertained. The rest of the girls are assigned places on the reception committee, the music committee, the entertainment committee, and the refreshment committee.

The girls in the dormitories may hold a reception for the faculty.

After the talk on "Good Taste in Rooms," which ought to be given early in the year, a Housewarming Party in which the girls' rooms are open, always pleases the girls.

All-school parties at special times such as Hallowe'en and Washington's Birthday give splendid opportunity for group activity.

Social Service Party

One school tells of an annual Ten-Ten Party. Just before Thanksgiving, thirty girls in the dormitory gave parties in their rooms, and invited all off-campus girls as well as dormitory girls. Each guest was asked to bring ten cents or more. Before the evening was over, at the sound of a bell, all the individual parties broke up and assembled in the reception room for community singing and a general visiting time. The money thus secured was used to buy provisions for Thanksgiving baskets for the poor of the city. A forum committee had consulted with local charitable institutions and learned the details of the needy cases. On Thanksgiving morning, the girls delivered the baskets.

This activity gives opportunity for social development in both the restricted and the broad sense.

Dormitory Library

If reading is emphasized in the forum, good books must be easily accessible. A school library is not enough; there must be one in every dormitory. In addition to the books which the house gradually accumulates, a forum committee may well see that a carefully selected assortment of books is brought from the library to the dormitory for every week-end.

Hiking

The organization of hiking clubs which will compete arouses interest in walking. Maps of the surrounding country with trips which may be taken by clubs or groups clearly marked keep up the interest.

Some system of scoring often adds zest. To illustrate, the points assigned might be something like this:

Morningside Drive (New York City)	5 points
Every 20 blocks on Riverside Drive (New York City)	5 points
Central Park (New York City)	20 points
Walk before breakfast adds to score	5 points
Walk on rainy day adds to score	5 points
Every girl in the group adds to score	2 points
Every non-dormitory girl in the group adds to the score	3 points

Interest is more keen if some sort of tally is kept. One school has tried this plan: The girls in the dormitory formed clubs of ten with a leader. The leader kept a weekly score on forms given her. She handed them to the nurse at the end of each

week. The purpose was to get the girls interested in walking from social motives. At the end of the year, the forum had a celebration for the winning club.

TALLY OF ..... WALKING CLUB

Name of Leader .....

Names of Members	M.	T.	W.	Th.	F.	Sat.	Sun.	Total
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
Extra Points								

Total for Club .....
Week Ending .....

We hope that we have made clear that the forum is more than a talk given in an auditorium before a large group of women. It embodies organized activities carried on through the united and continued efforts and interest of the dean and the students. It has four distinct parts:

1. Initiation of the subject by the students.
2. Presentation of the subject by talks and demonstrations.
3. Student discussion.
4. Follow-up work.

If these four steps are taken, we believe that there will be little occasion for the dangers mentioned in the answers on some of the questionnaires, as for example, the following:

"I feel the great need of instruction for the young women on these subjects, but the problem is how to get to the students? In the past the women have particularly resented talks on etiquette and dress. The desire for such information, or at least the right attitude toward it, should come before the information."

If the fourfold activity of the forum is developed, more schools will be making statements like these:

"The College Government Association, which discusses practically everything except medical and purely academic subjects, is the strongest single force in the college."

"Our forum is very active."

"As we have only fifty young men in the school and three hundred and seventy-three young women, the forum really is a definite organization among the women. Out of courtesy to the men who were anxious to receive the benefit of the instruction the young women allowed them to join."

"Marked results follow these discussions."

BIOGRAPHY

There is one subject which no school has put on its list, yet it is a very important one. Whether ideals can be taught from a forum platform may be open to question; the attempt, however, should be made. At least, ideals should be presented, not in any didactic, moralizing way, but through interesting talks about people whose biographies have been written.

If Jane Carlyle became reconciled to bread making when she realized that her work was in the same class as were the masterpieces of Cellini, is it not possible that the girls of today may find inspiration in the lives of Mary Antin, Edward Bok, and Alice Freeman Palmer?

A good biography pulsates so with life that we suggest that the forum talks on biography be not at all comprehensive, but merely thumb-nail sketches. The aim is simply to introduce the students to the characters in such a way that this acquaintance will develop into an abiding friendship. If we believe at all in Booth Tarkington's picture of the lad in *Seventeen* who made Sydney Carton his hero, or if we accept Dr. Cabot's plea for the consecration of the affections, we must make a place for biographies in the women's forum. A short sketch from the *Life of Alice Freeman Palmer*, by George Herbert Palmer, is here given as a suggestion. The questions appended show ways of following up the reading of a biography sketch.

A Thumb-Nail Sketch of Alice Freeman Palmer

There was born in 1855, in Colesville, New York, a little girl with dark hair and large eyes. Her father was a hard working farmer; her mother, one of five beautiful daughters of a Colesville farmer. Neither parent had inherited property, so comforts were little known in that home. Almost from infancy this child took part in the daily toil of the household. She gathered the eggs from the barn, helped

with the house work, and at the age of five was taking special care of the three younger children.

At four she began going to the village school, but as the teacher received only two dollars a week and board, we can imagine what the instruction must have been. Real education did not begin for her until the age of ten, when she entered Windsor Academy, seven miles from her little community of isolated farm houses. Here she came under the instruction of that most priceless thing—a real teacher. He saw the wonderful ability of this large-eyed girl sitting before him, and for her he did his teaching. He taught her accuracy and enthusiasm. He made her think herself worth while. College her goal now, she was not satisfied until she had prevailed upon her family to allow her to enter the University of Michigan.

Although entering with conditions on account of poor foundation work, and being constantly worried with problems of finance, she gained and held a prominent position as a scholar in spite of these two handicaps of poverty and inadequate preparation.

Probably few people have accomplished so much as did this girl now known the world over as Alice Freeman Palmer.

At the age of twenty-one, she was graduated from the University of Michigan; at twenty-two, she became a high-school principal; at twenty-four, she was called to Wellesley College as an instructor; at twenty-six, she was made its president; at thirty-two, she married George Herbert Palmer of Harvard; and at forty-seven her death was mourned by tens of thousands.

There in a span of practically only ten years she had endeared herself to countless people and made herself so famous that in 1921 she was enshrined in the Hall of Fame. Of all the praises that might have been sung of her, this simple sentence marks her place:

"The smallest village, the plainest home give ample space for the resources of the college trained woman."

If we would catch but a gleam from that radiant personality, we must read the story of her life written by her husband. Even then we marvel at the quiet force of the woman who made herself loved at home and abroad. A school in North Carolina for colored women bears her name; the Italian Immigration Society in Venice called her its president, as did also The International Institute for Girls in Spain. Radcliffe and the University of Chicago, as well as Wellesley, show the work of her mind and heart.

Although we can name the institutions which bear the mark of her influence, we cannot even count the individual lives that were quickened through her sympathetic and guiding interest in them. At her death, nearly two thousand of them —statesmen, schoolgirls, clerks, lawyers, teachers, country wives, outcasts, millionaires, ministers, and men of letters—wrote letters to her husband expressing their love and reverence for her.

It would be hard to say how many more have lighted their candles from the story of her struggles and achievements.

In one of her own letters we find that she wrote: "I do so want to put bright bits of beauty into and out of my life." That sentence expresses her faith; its fulfillment is in the lives of those who knew her personally and of those who now know her only through the story of her life interpreted so lovingly and understandingly by her husband.

If each one of us would read this life of Alice Freeman Palmer and then read her strength, cheer, and devotion into our own lives, those bright bits of beauty for which she so earnestly yearned would be lighting the dark places of campus, home, and community life.

SUGGESTIONS FOR DISCUSSION

1. Discuss Alice Freeman Palmer's preference for talking to people rather than for writing books.
2. Discuss the characteristics that made her so great a favorite with her classmates.
3. Discuss her three rules for being happy.
4. What characteristics made her a great teacher, president, and woman?
5. What were her ideas about marriage?
6. Why is it that no biography can do full justice to her?
7. Why was she not exhausted after a day full of social duties?

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HORACE MANN STUDIES IN ELEMENTARY EDUCATION

A Comparative Study of Formal Gymnastics and Play for Fourth-Grade Children

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Should breathing exercises be used to increase lung capacity? Will children gain in weight more rapidly if they participate in games than if they practice gymnastics? Are grace and skill of movement due to the kind of exercise used? If alertness is a desirable quality for boys and girls, shall we use response-command exercises in physical education, or games?

Teachers and directors of physical education, principals and superintendents of schools, and even lay persons are interested in the answers to the above questions. This article is an account of an experiment carried on in the Horace Mann School in which an attempt was made to measure the effects of two different types of physical education,—formal gymnastics and games.

Following the establishment of German and Swedish gymnastics in the American public schools,[1] there developed a more or less

[1] Leonard, F. E. "An Outline of the Development of Physical Training in Germany in Modern Times." (Part I.) *American Physical Education Review*, V: 18–39 (1900); "Friedrich Ludwig Jahn and the Development of Popular Gymnastics (Vereinturnen) in Germany." (Part II.) *American Physical Education Review*, X: 1–19 (1905); "Per Henrik Ling and His Successors at the Stockholm Normal School of Gymnastics." *American Physical Education Review*, IX: 227–243 (1904); "The Transition from Medieval to Modern Times—Chapters in the History of Physical Training." *American Physical Education Review*, X: 189–202 (1905); "The 'New Gymnastics' of Dio Lewis (1860–1868)." *American Physical Education Review*, XI: 83–95; 187–198 (1906); "The Beginnings of Modern Physical Training in Europe." *Mind and Body*, II: 185–191; 235–241 (1904).

Report of United States Commissioner of Education, I: 483–484 (1891–2); I: 522–539 (1897–8).

elaborate theory in this country to explain and sanction the use of such types of gymnastics. During the past thirty years there have been continuous efforts to justify particular systems, to form a new system, or to combine into one the best of several systems. It is significant to note, however, that systems of gymnastics brought to American shores have never been in harmony with the traits and characteristics of the American people. Their origin in Europe is marked by militaristic ideals among people essentially formal and autocratic.

For some years in America the criticism of the existing systems of gymnastics has centered around the type of exercise found in the syllabi of instruction for school systems, and the formal gymnastics as taught in certain colleges.[2] The antagonists and protagonists of formal gymnastics have indulged only in debate. The fields of biology, medicine, physiology, and even philosophy have been searched by the opposing groups for argumentative support. Unfortunately, there has been no scientific experimentation seeking to determine the relative merits of a formal gymnastic or a play and game program.

The formalists in physical education have based their work upon certain principles operative in the field of general education. At one time these principles completely dominated educational policy and procedure. Today there is less agreement as to their statement, and considerable questioning of their validity. We refer, of course, to the controversy centering about the value of formal discipline, the transference of power, or the development of general qualities. Typically, the formalists in physical education have held that formal gymnastics would develop obedience, alertness, good posture, coördination, and accuracy of movement.[3] They have taken the position that these were general qualities,—that obedience developed in the gymnasium would be apparent in the home, that the coördination obtained by stretching the right arm upward and the left arm sideward would be used in other exercises and movements, totally unrelated in type and quality. The play and game enthusiasts have in the main denied these special claims for formal gymnastics. They have supported the position taken in education by Dewey, Kilpatrick, and Thorndike, and have held that interest

[2] Wood, T. D. *Ninth Year Book*, Part I. National Society for the Study of Education, 1915.

[3] *American Physical Education Review*, XIX: 503–536 (1914).

is the core of physical activity, and that posture, skill, alertness, coördination, and obedience would result from activities which were carefully selected and appropriately led.[4]

Because of these varying points of view and the significance of the two different programs, it is important that evidence be secured which will help to select physical education activities. With this aim in mind, in this experiment in the Horace Mann School, an effort[5] was made to devise a series of tests which would measure changes in skill, alertness, posture, obedience, and general organic development. Particular difficulty was encountered in devising a test of obedience A letter was sent to prominent teachers and directors of physical education, stating the plan of the experiment and the desire for help in formulating a test of obedience. The letter asked also if it was their judgment that formal gymnastics developed the quality of obedience. The following excerpts will make clear the position taken on this point.

"Marching and formal gymnastics to command do develop rapidity of response to personal commands. This it seems is pretty closely related to obedience."

"I do not hesitate to add that formal gymnastics aid in the development of obedience to rules and regulations, and to use a trite expression 'to properly constituted authority.'"

"The question of obedience as a quality cultivated by formal gymnastics, about which you ask in your letter, seems to me a very limited and unsatisfactory phase of the training such gymnastics affords. In my judgment and that of probably all of our school principals, formal gymnastics is very valuable in cultivating discipline which is much larger than obedience. I am sorry that I cannot at this time think of any tests that would show the extent and quality of the effects of such training in this regard."

"That it is possible to develop the quality of obedience I firmly believe. It seems to me that there is such a thing as the habit of obedience. I am still of the opinion that in anything which requires obedience even formal gymnastics helps to make obedience habitual. The fact that it cannot be measured does not at all prove that it is not developed."

[4] Ehler, George W. "The Place of Gymnastics and Athletics in the Program of the Department of Physical Education." *American Physical Education Review*, XXI: 135–142 (1916).

Williams, J. F. "Proposals for Preparedness in Physical Education." *American Physical Education Review*, XXI: 451–461 (1916).

[5] Most of the preliminary work was done by Mr. Harry Scott in Education 390—Practicum in Hygiene and Physical Education.

"We support the view that formal gymnastics does develop obedience by training bodily discipline in so far as obedience can be considered a physical quality.

"I am sorry we cannot help you in devising a test to measure this quality, but since it is so much of a moral quality, obedience is rather difficult to measure."

"I am pleased to know that you are going to try to measure the various Physical Training values which we have been trying to instill. As to Posture, I have some different ideas, as I represented at the Conference on April tenth. I believe organic health expresses itself in various ways, one of which is the ability of the circulation to resist gravity.

"You will have your trouble with testing obedience, because you must measure not only the force of your initial instruction, but the force of the handicaps in its way."

"I do not see how you can compare different exercises that are entirely independent of one another, because I do not believe in the old doctrine of formal discipline and do not think training in one line will have much effect on obedience in another."

The experiment as planned and carried out thus aimed to determine the relative worth of formal gymnastic and play programs for fourth-grade children in the Horace Mann School. The programs were to be judged by their effectiveness in producing changes in skill, alertness, obedience, posture, height, weight, chest measurements, lung capacity, strength, and heart condition.

Two fourth-grade classes, which we will here designate by their room numbers, Room 203 (the play-game group) and Room 201 (the formal gymnastics group), were selected. They were considered equal in ability by the principal of the school, but we did not depend on that judgment alone. Their mental rating as determined by the school psychologist showed that they were alike in intelligence. The equalization plan used in handling the data equalized the classes in the different tests. In short, we are dealing with two classes which are absolutely equal in intelligence, and in motor ability, obedience, and posture, as measured and determined. By this fact we rule out at once the question of relative growth due to superiority or inferiority in one group as compared with the other. Starting with equalities, any registerable change in the final tests indicates that the work as given is the factor producing the change, other things being equal.[6] It should also be noted that the

[6] It is of course possible that for one or the other class other things were not equal. All of the parents of children in one class may have been more careful of the hygiene of sleep, rest, nutrition, and exercise. There is no evidence, however, that such a condition obtained. All of the children are living in New York City, and all come from about the same type of home.

class which was given the formal gymnastics program (Room 201) was taught by a more formal method in the regular work of the class room, and that the class which used the play and game program (Room 203) had a much freer type of work under the direction of the regular room teacher. Finally, one highly trained supervisor [7] taught both classes throughout the experiment. She is skilled in both types of work, has had experience in both types, and is not unreasonably prejudiced in favor of one type over the other. So far as possible her attitude was one of openmindedness.

Aims Set for the Programs

The teacher of physical education in both rooms, 201 and 203, was given directions for the conduct of the formal and play-game activities as follows:

AIMS OF FORMAL GYMNASTICS [8]

Formal calisthenic drills and gymnastics are supposed to develop the power of voluntary attention, a sharpened kinesthetic sense, and the habit of quick and accurate response to command.

They should offer and demand a correct solution of definite motor problems, involving precision, speed, balance, quick and sure weight adjustment, and rhythm.

They should be conducive to correct bearing by requiring good gymnastic posture in all exercises.

They should increase muscular tone, respiratory power, endurance, and localized control, and should cultivate a good posture sense.

In order to accomplish the above objects the work must be taught in a way to focus attention, to exercise the discriminative and inhibitory powers, and to elicit vigorous, clean cut, well-defined motor reactions.

AIMS OF PLAYS AND GAMES

It is claimed that plays and games develop all the habits and powers asserted by the advocates of formal calisthenics and gym-

[7] The supervisor who taught the classes was Miss Ruth V. Atkinson, instructor in physical education, Teachers College.

[8] These aims are here expressed as they are usually stated by the formalist. The quality of response required, however, was conditioned by the age of the children. See Skarstrom, W. *Gymnastic Teaching and Gymnastic Kinesiology.*

nastics, but they teach them in a much more wholesome way since plays and games are entirely objective in nature. The attention is not subjective but is focused on the ultimate object of the game. Thus the desirable qualities are developed without having been sought for as such.

It is also claimed that plays and games develop many desirable attitudes which are of assistance in acquiring social and moral values,[9] such as a sense of fair play, stick-to-it-iveness, optimism, honesty, loyalty, self-control, courage, humility, enthusiasm, leadership, sense of responsibility, decision, self-sacrifice, sense of honor, helpfulness, coöperation, broadmindedness, sense of justice, obedience, and generosity.

The experiment was conducted from October, 1920 to May, 1921, inclusive, thus extending over a period of eight months. The instructions given to the teacher for the organization of lessons follow.

DAY'S ORDER FOR FORMAL WORK

There will be no attempt to lay down a hard and fast series of exercises for the formal work. This will be determined largely by the instructor who will consult her supervisor frequently. The work should be as formal in nature as possible, and the time division should be as follows:

Length of the period	20 minutes
Division of the period:	
1. Introductory exercises	2 minutes
2. Corrective exercises	4 minutes
3. Educational exercises	6 minutes
4. Physiological exercises	2 minutes
5. Recreational exercises	6 minutes

It is intended that the recreational period be taken up with relay games, apparatus work, jumping, mat work, ropes, ladders and so forth. The other periods should include marching, facings, and such calisthenic exercises as would fall under the above named heads.

[9] Social and moral values are very difficult to measure. It was not possible at the time of the experiment to devise tests which would measure these qualities. See Upton-Chassell, "A Scale for Measuring the Importance of Habits of Good Citizenship." *Teachers College Bulletin*, Twelfth Series, No. 9, Jan. 1921; see also TEACHERS COLLEGE RECORD, XX: 52–79 (1922).

THE PROGRAM FOR PLAY

The program for play will likewise be left to the instructor. The plays and games should conform to the physiological and psychological ages of the children. There would be no objection to allowing the children to work out game and dance projects started in other classes; in fact, such a procedure would be desirable.

The general instructions for the instructor were as follows:

It will be necessary to keep a complete record of all types of games and exercises which are given, and to note all observations in any way significant to the experiment. These records should be kept in log form.

Typical Lessons for the Two Groups

The following typical lessons for the formal (Room 201) and play (Room 203) groups show the kind of program used in the experiment. The technical nomenclature of gymnastics is not used in this description.

FORMAL GYMNASTICS. ROOM 201

Introductory (2 minutes).

Marching, skipping, running, slow walking.
Facings.
Open order formations.

Corrective (4 minutes).

Breathing exercises with arm raising forward upward on inspiration, sideward downward on expiration.
With hands on hips, head backward bending-forward raising.
Various exercises, designed to straighten the thoracic spine and to strengthen the upper back.

Educational (6 minutes).

Arm raising forward with heel raising.
Arm raising sideward with knee bending.
Various combinations of arm and leg movements combined with trunk positions.

Physiological (2 minutes).

With hands on hips, trunk bending sideward left and right. Various combinations.
With hands on hips, hopping in place, alternately in various combinations.
Breathing exercises.

Recreative (6 minutes).

Apparatus or
Relay races.

PLAYS AND GAMES. ROOM 203

Play periods were organized in the first four weeks from material as given below:

I. Follow the Leader.
Balloon. (One large circle, all hands joined tightly, all run to center, all run out, pulling *hard*. If any hands break apart those two are out of the game. Idea is to find strongest in the class.)
Cross Circle Ball.
Animal Chase.

II. Catch of Fish.
Poor Peter.
Leap Frog Race.

III. Tap the Stick (Walking game).
Jumping Circle. (Rope is swung from center, all are in center. If hit, they are out. Played in teams. Scored.)
Stealing Sticks.

IV. Sculptor.
Obstacle game on all apparatus available. (Hang on rope, walk on ladder, walk balance beam, jump off buck, somersault on mat, etc.)

Other games played were:

Three Deep	Beetle Goes Round
Hill Dill	Ducks Fly
Run Sheep Run	Bird Catcher
Corner Spry	Soldiers and Brigands
Guess Who	Circle Tag
Cross Tag	Center Ball
Numbers Change	Circle Ball
Have You Seen My Sheep	Dodge Ball

After the first four weeks the children planned their own play periods. Two children were assigned each day to take charge of the class. They made out a plan and presented it to the teacher in charge who approved or suggested changes in the games. They then conducted most of the period themselves. Some did it very well, some not at all well, but the whole class had a chance. Toward the end of the year, one game was played as often as opportunity permitted. It was a team game called Pass Ball. It is a very simple adaptation of Newcomb. The children chose their teams, elected their captains, and pretty largely directed their own play.

The Tests

The tests which were used were selected in order to determine the condition and ability of the children in the two groups with

reference to posture, skill, alertness, and obedience. Data as to height, weight, girth of chest, girth of chest expanded, strength of right and left forearm, and lung capacity were also obtained. Determinations of heart response in the Foster test were also made, although it was known that the test was devised for adolescents. Its use for these fourth-grade groups was entirely experimental. Efforts were made to devise satisfactory tests of physical courage and sportsmanship but nothing worth while was accomplished. The tests which were used throughout the experiment are described in the following pages.

POSTURE TEST

The Bancroft test [10] for posture was used. The test was given in October by Miss Jessie H. Bancroft, assisted by Miss Adelaide Membery. In May, Miss Bancroft was unable to give the test, but Miss Membery consented to give the test alone.[11] The method of giving the test and instructions for scoring are given in Miss Bancroft's book.

TESTS OF SKILL

Motor skill was measured by the use of five tests, one of which, the Creek test, was an original test. A description of the five tests follows.

1. CREEK TEST (Crossing a creek on stepping stones).

   Object: To cross the creek and get up the high bank without getting the feet wet.

   Method: Starting from the creek bank, hop on the first stone landing on one foot and holding the other one up without touching the stone; next hop to the other stone in the same manner. Continue hopping until the high bank is reached and then mount the bank either by the use of the "grapevine" (rope) or by climbing up. It is not necessary to touch each stone; the child may use his own discretion on this point. It is necessary, however, to land on one foot and hop without allowing the other one to be lowered.

   Apparatus: Draw lines on the floor with crayon representing the stones and creek bank (Fig. A). The stones should be only large enough to accommodate one foot with about two inches margin. The high bank may be made by throwing a mat over a horse or the parallel bars. Arrange

[10] Bancroft, Jessie H. *The Posture of School Children*. Chap. XVIII: 197–203. New York: Macmillan Company, 1913.

[11] Miss Bancroft's and Miss Membery's kind coöperation and invaluable help have been greatly appreciated.

the rock nearest the high bank so that it comes almost directly under one of the ropes. Then arrange the high bank so that the child may mount it by grasping the rope while standing on the rock and pulling himself up. The rope will represent the grapevine spoken of above. The creek should be 12 feet wide.

Scoring: Each child may have two trials. In case he crosses the creek successfully and mounts the high bank he scores 10 points. If he should fall off the stones on the creek-bank side of the halfway line he scores 1 point; if he falls off on the high-bank side of the halfway line he scores 5 points. His highest score counts whether it is made on his first or second trial.

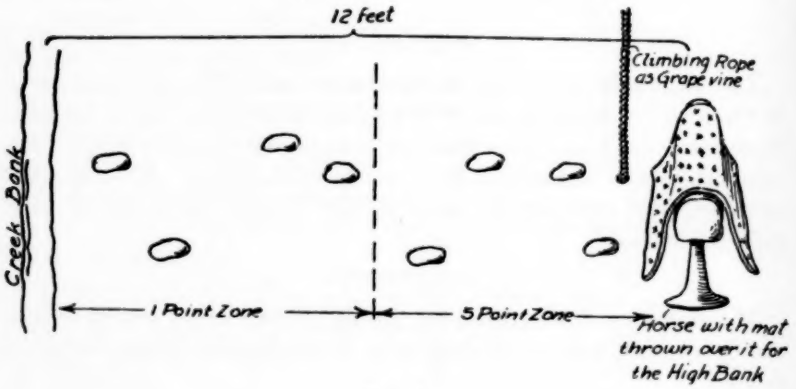


FIG. A

2. BEAN BAG TEST.

Bean bags 5½ x 5½ inches in size and weighing 6½ ounces were used for testing ability to toss them at a target drawn on the floor. The circles of the target were 1 foot and 1½ feet in diameter. The pupils tossed from a mark 12 feet distant from the target. The event was scored as follows:

Tossing in 1 foot circle . . . . . 10 points.
Tossing in 1½ foot circle . . . . . 5 points.

3. THRUSTING TEST.

At a distance of 8 feet, the subject attempted to touch with a wooden foil the center (bull's eye) of a target. The foil used was an Anderson foil (33 inches long from tip to guard) made by the Narragansett Machine Co., Providence, R. I. and described in their Catalog F9 on page 128. The target was 20 inches square with a bull's eye of 3 inches in diameter and circles of 9 inch and 15 inch diameters.

Standing on a mark 8 feet from the target the subject was permitted to lunge when the thrust was attempted. This enabled the individual to adjust his step to his needs.

The event was scored as follows:

Touch in bull's eye	10 points.
Touch in inside circle	5 points.
Touch in outside circle	1 point.

4. STILTS TEST.

This test consisted in walking on stilts [12] without assistance of any kind. The measurements of the stilts were as follows:

Total length	66 inches.
Height of footrest from floor end	13 inches.
Width of footrest	3½ inches.

The test was scored as follows:

Walking on stilts 50 feet	10 points.
Walking on stilts 25 feet	5 points.
Walking on stilts 15 feet	1 point.

5. BALANCE BEAM TEST.

The balance beams used were beams manufactured by the Narragansett Machine Co., Providence, R. I., and described in their Catalog F9 on page 55. The tread was 2 inches wide; the length 12 feet. The subjects were required to walk the beams without assistance. They were scored as follows:

Walking two beams (24 feet)	10 points.
Walking one beam (12 feet)	5 points.
Walking one-half of one beam (6 feet)	1 point.

ALERTNESS TEST

The alertness test consisted in making in 20 seconds as many crosses as possible in the squares of a card containing 64 spaces. The process was repeated for dots. Two trials were given and the best scores recorded. The scores were determined by the number of crosses and dots made in 20 seconds.[13]

OBEDIENCE TEST

The obedience test used required simple obedience to command and direction. There was no reasoning involved in response to the test. The aim was to select a test that required a military type of reaction, so commonly sought in formal gymnastics for disciplinary

[12] The stilts were made in the carpenter shop of Teachers College.

[13] Whitley, M. T. *An Empirical Study of Certain Tests for Individual Differences.* pp. 84–86. Garrison, New York: Science Press, 1911.

purposes. The instruction sheet for the teacher and assistants was as follows:[14]

A. At the central gymnasium divide the group into 5 squads.
   1. Direct Squad 1 to report immediately to Miss —— in the gymnasium in the basement of the Horace Mann Building.
   2. Direct Squad 2 to report to Miss —— in the gymnasium on the fourth floor of Thompson Building.
   3. Direct Squad 3 to report to Miss —— on the play field in the rear of Thompson Building.
   4. Direct Squad 4 to report to Miss —— on the roof of Thompson Building.
   5. Direct Squad 5 to report to Miss —— in the bowling alley in the basement of Thompson Building.

B. Immediately upon the arrival of the children at their respective destinations from the central gymnasium, request them to do the following things without answering any questions or making any explanations.
   1. Hand me the message from Miss Atkinson, please.
   2. Stand in a straight line in front of me and answer "present" as I call your name. Do not talk to anyone after you answer to your name.
   3. Walk five steps backward and sit down on the floor.
   4. Stand up.
   5. Sit down.
   6. Stand up.
   7. Turn around.
   8. Hop on one foot.
   9. Stop.
   10. Return directly to Miss Atkinson and hand her this message.

C. To grade the children, check after their names the number of times they fail to obey the instructions as given.
   1. If a child does everything he is told to do he should receive 10 points.
   2. If he does six or more but not ten, he should receive 5 points.
   3. If he does any number under six, he should receive 1 point.

The five assistants and the teacher should set their watches together and decide upon the exact time at which the children will be sent from the central gymnasium. The assistants should then proceed to their assigned rooms and the teacher should get the five squads lined up and take their names in the order in which they are standing; she should also mark on the name-list the exact minute at which they are to leave the room to proceed to the assistant. After she has the names she should hand the list to the leader of the squad with the instructions that he and his squad are going to carry a message to Miss —— in Room ——, and that they must get there as quickly as they can and not get out of line.

The assistant should record the exact minute at which the squad arrives at its destination, noting the time it took to cover the distance from the central

[14] The instruction sheet for this test is given in detail because its form and procedure are not well known.

gymnasium to the destination. Likewise the assistant should record the exact minute the squad leaves her to go back to the teacher, and the teacher in turn should record the exact minute they arrive.

It is very important that the assistants have each child answer to his name, because this is the only way in which an accurate record can be kept of the child's behavior.

The following is an example of how the "message" from the teacher to the assistant should look:

Time of leaving teacher . . . . . .
Time of arriving at assistant's room . . . . . .
Total number of minutes and seconds in transit . . . . . .
Time of leaving assistant's room . . . . . .
Time of arriving at teacher's room . . . . . .
Total number of minutes and seconds in transit . . . . . .
Names of the children:
1. John Jones
. . . . . .
2. Mary Brown
. . . . . .
3. Helen Smith
. . . . . .
4. Nora Bayne
. . . . . .
5. Everett Scott
. . . . . .

GROWTH, DEVELOPMENT, AND FUNCTION TESTS

Measurements were taken by Dr. Philip M. Stimson and Mrs. William H. McCastline to determine growth in height and weight, development of chest, chest mobility, strength, and cardiac function. The tests [15] used for this purpose were as follows:

1. HEIGHT AND WEIGHT.

The stadiometer was used to record height and Fairbanks scales to record weight. Determinations were made on the children without clothing.

2. GIRTH OF CHEST AND GIRTH OF CHEST EXPANDED.

These measurements were taken without clothing. The anthropometric tape with spring attachment, manufactured by the Narragansett Machine Co., was used. (Narragansett Machine Co. Catalog 1. P. 7.)

3. LUNG CAPACITY.

The wet spirometer was used for this determination. The readings were in cubic inches.

[15] The tests were the usual routine ones. The operators were not acquainted with the purpose of the experiment.

4. Strength of Forearm.

The instrument used was the hand dynamometer. Whipple [16] gives directions for taking height, weight, lung capacity, and strength measurements.

5. Foster Heart Test.

This test devised for adolescents was used to determine its applicability for such groups as the fourth grade. There is no satisfactory heart test for the lower age ranges. The technique as given by Foster [17] was followed.

INTELLIGENCE RATING

The Horace Mann School psychologist supplied the data on the intelligence rating of the two groups. The intelligence quotient for each member of the two classes is given in the following table.

Room 203 Play-Game Group				Room 201 Formal Gymnastics Group			
PUPIL	I.Q.	PUPIL	I.Q.	PUPIL	I.Q.	PUPIL	I.Q.
1.	1.44	15.	1.14	1.	1.29	15.	1.20
2.	1.19	16.	1.38	2.	1.00	16.	1.46
3.	1.02	17.	1.18	3.	1.06	17.	1.12
4.	1.16	18.	1.17	4.	1.11	18.	1.34
5.	1.21	19.	1.01	5.	1.01	19.	1.08
6.	.98	20.	1.36	6.	1.20	20.	1.13
7.	1.29	21.	1.10	7.	1.25	21.	1.27
8.	1.18	22.	.99	8.	1.13	22.	1.25
9.	1.09	23.	1.19	9.	1.11	23.	1.19
10.	1.14	24.	1.14	10.	1.09	24.	1.07
11.	1.07	25.	1.12	11.	1.07	25.	1.26
12.	1.30	26.	1.00	12.	1.09	26.	1.14
13.	.96	27.	1.08	13.	1.36	27.	1.13
14.	1.48			14.	1.07		
Median for Room 203, 1.14 Range, .96—1.48				Median for Room 201, 1.13 Range, 1.00—1.46			

The above data show that the two classes were equal in mental ability. The equalization methods used to equalize in motor performance are described later.

[16] Whipple, G. M. *Manual of Mental and Physical Tests.* pp. 65, 73–75, 93–95, 100–102. Baltimore: Warwick and York, 1914.

[17] Foster, W. L. "A Test of Physical Efficiency." *American Physical Education Review*, XIX: 632–636 (1914).

Class-Room Teachers' Observations

The class-room teachers were asked to note expressions from the children about the activities before or after the physical education period in order that they might observe emotional conditions after the physical education period, and also the effect of the physical education activities upon the work of the succeeding period. Brief reports from the teachers of the two rooms follow.

Room 201. "Class returned from the gymnasium in good order. No particular undesirable effects noted. Formal work would not have held the class much longer, as the children gave expression many times to their desire to have games and 'freer exercises.'"

Room 203. "Class always returned from the gymnasium relaxed, rested, orderly, quiet, and ready to settle down to mental work."

Results of the Experiment

There were 27 children in each group studied. On account of absences either in October or in May, and marginal cases, this number was reduced for the purposes of the experiment. To avoid extreme cases and to make sure that the two groups were equal in ability to start with, the extremes were eliminated.

To equalize the two groups was a very important consideration in handling the data, for otherwise the question of one group being further advanced and hence showing a relatively smaller gain would immediately arise. Equality was secured by eliminating the very low records and the very high records in the skill, alertness, and organic development tests, and by pairing the scores in the obedience test. This method reduced the number of children in the two groups, but it made certain the fact that the two groups compared were equal in ability in October. The equalization reduced the number to 14 in each class for the skill tests, 17 to 22 in each class in the tests of organic abilities, and 18 in each class in the obedience test. An analysis of the results in each test follows.

POSTURE

The triple posture test was used. The results are as follows:

Room 203. Play-Games

OCTOBER		MAY	
Armstrong	Passed 3	Armstrong	Passed 3
Holzman	Passed 3		
Reed	Passed 2		
		Rockwell	Passed 3

TABLE I

Skill and Alertness Tests

Scores Before Equalization

Room 201	Creek		Bean Bag		Thrust-ing		Stilts		Bal. Beam		Alertness: Dots		Alertness: Crosses	
	Oct.	May	O.	M.	O.	M.	O.	M.	O.	M.	O.	M.	O.	M.
Black, Eleanor	v	10	10	5	10	5	10	0	0	1	1	64	60	46	50
Blackman, Mayrel	v	5	10	10	10	10	10	0	0	1	1	64	55	36	50
Brown, Constance	*	ab	5	ab	5	ab	ab	ab	1	ab	1	ab	ab	ab	ab
Craig, Robert	*	ab	ab	ab	10	ab	10	ab	5	ab	5	ab	ab	ab	ab
Dennis, Lofton	*	10	ab	5	ab	5	ab	5	ab	10	ab	64	64	30	54
Duncan, William	θ	10	10	10	10	10	5	1	5	1	1	64	59	32	39
Edwards, Ethel	v	10	5	5	10	5	5	0	10	10	10	64	59	45	39
Finch, Edward	v	10	5	10	10	5	10	10	10	1	5	56	60	31	41
Fosdick, Elinor	θ	10	10	10	10	10	10	10	10	1	10	64	64	40	60
France, Herbert	*	ab	10	ab	5	ab	10	ab	5	1	1	ab	ab	ab	ab
Friedrick, Arthur	*	ab	5	ab	5	ab	5	ab	1	ab	1	ab	ab	ab	ab
Grady, Helen	v	10	5	10	5	10	5	1	1	0	1	64	61	37	54
Harrison, Compton	*	10	10	10	10	10	10	0	ab	10	5	64	60	35	42
Herring, Beth	v	1	10	10	10	10	5	0	5	1	1	54	57	44	47
Holmes, Robert	v	10	10	5	10	10	10	1	10	10	10	54	57	32	34
Lehman, Ruth	v	1	5	10	5	5	5	5	1	0	1	43	55	26	39
Lowenstein, Judith	v	5	10	10	10	10	10	1	5	1	5	50	55	29	41
Ludnig, Roseclair	*	10	10	10	10	5	5	1	5	0	10	ab	ab	ab	ab
Michelson, Konrad	θ	10	10	5	0	5	10	10	5	10	10	64	64	31	60
Miller, Adam	*	ab	10	ab	10	10	10	0	5	ab	1	64	54	26	50
Redmond, Betty	*	ab	10	ab	10	ab	10	ab	1	ab	10	ab	ab	ab	ab
Schleicher, Julia	*	10	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab
Strayer, Paul	*	ab	5	ab	10	ab	10	0	10	ab	10	62	64	23	49
Tarbox, Fisk	v	10	10	10	10	10	10	0	10	0	5	56	61	36	41
Thomas, Cid	v	10	10	10	10	10	10	0	10	10	10	64	64	35	57
Thomas, Robert	v	10	10	10	10	5	10	0	10	10	10	64	60	37	39
Vogel, Betsy	v	5	5	5	5	5	5	0	1	0	0	56	52	32	39
Walden, Herbert	*	10	ab	10	ab	10	ab	0	ab	10	ab	ab	51	ab	33
Wiehe, Theodore	*	10	ab	10	ab	5	ab	5	ab	5	ab	ab	ab	ab	ab
Wilson, Jane	v	10	10	10	10	5	10	0	10	5	10	64	63	32	53

Room 203	Creek		Bean Bag		Thrust-ing		Stilts		Bal. Beam		Alertness: Dots		Alertness: Crosses	
	Oct.	May	O.	M.	O.	M.	O.	M.	O.	M.	O.	M.	O.	M.
Alida, Marie	*	10	10	ab	ab	10	ab	0	ab	1	ab	42	45	21	25
Armstrong, Betty	θ	1	5	5	10	10	10	0	10	0	5	39	49	27	37
Buchner, Frank	v	10	10	10	10	10	10	0	10	1	5	48	51	21	32
Carr, Loriel	*	1	5	10	5	10	10	0	5	0	1	ab	ab	ab	ab
Fitch, Faith	v	10	10	5	10	10	10	1	5	1	1	45	50	20	40
Fortier, Alida	*	5	5	1	10	5	10	1	5	1	1	ab	ab	ab	ab
Harress, Glenn	v	10	5	10	10	10	5	1	10	10	10	36	57	29	42
Hazlett, John	v	5	10	10	10	5	10	1	10	5	5	57	64	24	39
Henry, Ronald	v	10	10	10	10	10	10	1	5	10	5	60	64	33	60
Holzman, Jane	*	5	10	10	10	10	10	0	5	1	ab	53	57	29	32
Jellinghaus, Matilda	θ	10	10	10	10	5	10	10	5	10	10	64	59	34	39
Knox, Alexina	v	10	10	5	10	10	10	0	5	1	10	51	64	20	44
Lave, Andrew	v	10	10	10	10	10	10	0	5	1	5	63	64	40	54
LeBosse, Louise	θ	10	10	5	5	10	10	0	10	1	10	61	64	39	51
Macknight, Margaret	*	5	10	5	ab	10	ab	0	ab	10	10	50	61	29	41
Norton, Paul	*	10	5	10	5	10	10	ab	1	10	5	59	61	34	38
Otis, Annabelle	*	ab	10	ab	10	ab	10	ab	5	ab	5	ab	ab	ab	ab
Popper, Emmy Lou	v	10	10	10	10	10	10	0	5	0	1	59	52	25	41
Porter, Catherine	v	1	5	10	10	10	10	0	10	5	5	59	64	23	47
Pottenger, Charles	θ	10	10	10	10	10	5	0	10	10	10	64	62	34	52
Ransom, Dorothy	*	1	5	5	ab	10	ab	0	ab	0	10	64	64	35	60
Reed, Virginia	v	5	5	5	10	10	10	10	10	1	10	60	64	30	51
Rice, Catherine	v	1	1	5	10	10	10	1	10	5	10	59	61	34	45
Robertson, Lucy	v	5	10	10	10	10	10	0	5	10	10	56	60	36	59
Rockwell, Mary E.	*	ab	10	ab	10	10	ab	ab	ab	ab	5	64	64	50	60
Smith, Barbara	v	5	10	5	10	10	10	0	10	5	10	59	64	35	60
Weiss, Irma	v	5	10	5	10	5	10	0	5	5	5	64	64	44	51
Whitehead, Ed.	*	ab	10	ab	10	ab	ab	ab	ab	ab	10	ab	ab	ab	ab

ROOM 201. FORMAL GYMNASTICS

OCTOBER		MAY	
Lehman	Passed 2		
Lowenstein	Passed 3	Lowenstein	Passed 3
Miller	Passed 3		
		Edwards	Passed 3
		Ludnig	Passed 3

It will thus be seen that Room 203 (the game group) and Room 201 (the formal group) were equal at the beginning. After a year's work in which no attention was given to postural exercises with one group, and daily attention (a total of 544 minutes) was given to postural exercises with the other group, the results slightly favor the formal group (Fig. 9). One from each class passed in October and also in May. In May, two in Room 201 and only one in Room 203 passed who did not pass in October.

SKILL

The scores made in the skill and alertness tests are given in Table I; the values after equalization are shown in Table II [18] and the losses and the gains in Table III. Examination of the results in the skill tests (Figs. 1–5) raises the question of intelligence represented in the groups after they were equalized by having eliminated high and low scores in motor performance, i.e., did equalization happen to leave out in one group children with a high I.Q.? To answer this question the fourteen pupils in each group were checked for their I.Q. It was found that the median for Room 203 was 1.16; and that the median for Room 201 was also 1.16. In Room 203, the lowest I.Q. among the fourteen was 1.00, the highest, 1.46; in Room 201, the lowest was .98 and the highest, 1.30.

ALERTNESS

The findings in the alertness test are shown in Tables I, II, and III in the same manner as are the scores for the skill tests. Figs. 6 and 7 show the relative gain and loss from October to May in the alertness test for the two groups.

[18] Table II differs from Table I in that the scores in Table II are weighted so that scores in the different events have about the same values. In Figs. 1–9 the gains and losses are represented by base line figures which are arbitrary assignments of valuet to the differences found in the tabular data. For example, in Fig. 5 in the Balance Beam Test for Room 203, gains of 2, 8, 10, and 18 shown in Table II are represented by score values of 1, 2, 3, and 4, and a loss of 10 is represented by −3.

TABLE II

SKILL AND ALERTNESS TESTS

SCORES AFTER EQUALIZATION

ROOM 203	Creek		Bean Bag		Thrusting		Stilts		Balance Beam		ALERTNESS			
											Dots		Crosses	
	Oct.	May	Oct.	May	Oct.	May	Oct.	May	Oct.	May	Oct.	May	Oct.	May
1. Rice (92)*	3	3	10	20	20	20	3	30	10	20	29	30	17	22
2. Porter (93)	3	15	20	20	20	20	0	30	10	10	29	32	11	28
3. Knox (97)	30	30	10	20	20	20	0	15	2	20	25	32	10	22
4. Fitch (97)	30	30	10	20	20	20	3	15	2	2	22	25	10	20
5. Hazlett (98)	15	30	20	20	10	20	3	30	10	10	28	32	12	19
6. Weiss (99)	15	30	10	20	10	20	0	15	10	10	32	32	22	25
7. Smith (101)	15	30	10	20	20	20	0	30	10	20	29	32	17	30
8. Buchner (106)	30	30	20	20	20	20	0	30	2	10	24	25	10	16
9. Popper (111)	30	30	20	20	20	20	0	15	0	2	29	26	12	20
10. Robertson (121)	15	30	20	20	20	20	0	15	20	20	28	30	18	29
11. Reed (122)	15	15	10	20	20	20	30	30	2	20	30	32	15	25
12. Lave (123)	30	30	20	20	20	20	0	15	2	10	31	32	20	27
13. Harress (125)	30	15	20	20	20	10	3	30	20	20	18	28	14	21
14. Henry (139)	30	30	20	20	20	20	3	15	20	10	30	32	16	30
ROOM 201														
1. Lehman (84)	3	15	20	10	10	10	15	3	0	2	21	27	15	16
2. Vogel (85)	15	15	10	10	10	10	0	3	0	0	28	26	22	19
3. Herring (90)	3	30	20	20	20	10	0	15	2	2	27	28	18	19
4. Lowenstein (99)	15	30	20	20	20	20	3	15	2	10	25	27	14	20
5. Black (104)	30	30	10	20	10	20	0	0	2	2	32	30	20	22
6. Blackman (104)	15	30	20	20	20	20	0	0	2	2	32	27	15	22
7. Tarbox (114)	30	30	20	20	20	20	0	30	0	10	28	30	16	18
8. Wilson (114)	30	30	20	20	10	20	0	30	10	20	32	31	12	22
9. Edwards (116)	30	15	10	20	10	10	0	30	20	20	32	29	14	17
10. Grady (118)	30	15	20	10	20	10	3	3	0	2	32	30	13	22
11. Thomas, R. (122)	30	30	20	20	10	20	0	30	20	20	32	30	10	16
12. Holmes (124)	30	30	10	20	20	20	3	30	20	20	27	28	14	15
13. Finch (133)	30	15	20	20	10	20	30	30	2	10	28	30	13	18
14. Thomas, C. (135)	30	30	20	20	20	20	0	30	20	20	32	32	13	24

* The number in parentheses at the right of the name of each student represents the sum of the October scores in the skill and alertness tests.

OBEDIENCE

The findings in the obedience test before equalization are given in Table IV and the scores after equalization in Table V. The graphic representation of percentage gain is given in Figure 8.

TABLE III

Skill and Alertness Tests: Losses and Gains

Events	Room	+10	+9	+8	+7	+6	+5	+4	+3	+2	+1	0	−1	−2	−3	−4	−5	−6
Creek . . .	203									4	1	8		1				
	201								1	2	1	7		3				
Bean Bag . .	203										6	8						
	201										3	9	2					
Thrusting . .	203										2	11	1					
	201										4	8	2					
Stilts	203						3	3	5	2		1						
	201						5	1	1	1	1	4		1				
Balance Beam	203							2	2	2	1	6			1			
	201								2	2	2	8						
Alertness Dots . . .	203	1			1			1	3	3	3	1			1			
	201					1				3	2	1	1	4	1		1	
Alertness Crosses . .	203	7*		1	3	1	1		1									
	201	2**	1		1	2	1		1	2	3				1			

* Five individuals in Room 203 gained over 10, namely, 11, 12, 13, 14, and 17.

** One individual in Room 201 gained over 10, namely, 11.

TABLE IV. OBEDIENCE TEST: SCORES BEFORE EQUALIZATION

ROOM 203	Oct.	May	ROOM 201	Oct.	May
Armstrong	10	10	Black	10	10
Buchner	10	10	Blackman	5	10
Carr	5	5	Dennis	5	5
Fitch	10	10	Duncan	10	5
Fortier	10	10	Edwards	10	5
Harress	5	10	Fosdick	10	10
Hazlett	10	5	France	1	5
Henry	5	5	Friedrick	1	1
Higalsbee	1	5	Grady	5	5
Holzman	10	10	Herring	1	5
Jellinghaus	1	10	Holmes	1	5
Knox	1	5	Lehman	1	1
Lave	5	5	Lowenstein	1	10
Le Bosse	10	10	Lownes	0	1
Macknight	10	10	Ludnig	5	5
Norton	5	10	Michelson	1	10
Otis	10	10	Miller	5	10
Popper	1	5	Strayer	10	10
Porter	5	10	Tarbox	10	5
Pottenger	10	10	Thomas, C.	5	10
Ransom	5	10	Thomas, R.	5	10
Reed	5	5	Vogel	1	5
Rice	10	10	Walden	5	5
Robertson	10	10	Wilson	5	5
Rockwell	10	10			
Smith	5	5			
Weiss	10	10			

TABLE V. OBEDIENCE TEST: SCORES AFTER EQUALIZATION

ROOM 203	Oct.	May	Units of Gain or Loss	ROOM 201	Oct.	May	Units of Gain or Loss
Knox	1	5	+1	Friedrick	1	1	0
Higalsbee	1	5	+1	Herring	1	5	+1
Jellinghaus	1	10	+3	Holmes	1	5	+1
Popper	1	5	+1	Lehman	1	1	0
Smith	5	5	0	Wilson	5	5	0
Reed	5	5	0	Thomas, R.	5	10	+2
Porter	5	10	+2	Thomas, C.	5	10	+2
Norton	5	10	+2	Miller	5	10	+2
Lave	5	5	0	Ludnig	5	5	0
Henry	5	5	0	Grady	5	5	0
Harress	5	10	+2	Dennis	5	5	0
Carr	5	5	0	Blackman	5	10	+2
Armstrong	10	10	0	Black	10	10	0
Buchner	10	10	0	Duncan	10	5	−2
Pottenger	10	10	0	Edwards	10	5	−2
Fitch	10	10	0	Fosdick	10	10	0
Fortier	10	10	0	Tarbox	10	5	−2
Hazlett	10	5	−2	Strayer	10	10	0
		Total	10			Total	4

The median I.Q. for the two groups was 1.16 for Room 203, and 1.16 for Room 201. The range in Room 203 was .98—1.44; in Room 201, it was 1.00—1.46. Room 203 gained 10 units in obedience and Room 201, 4 units.

GROWTH AND DEVELOPMENT

The findings for height, weight, chest girths, lung capacity, and so forth, are given in Table VI. The data for each test of weight, height, etc., were equalized as shown in Table VII. After equalization the values were arranged as are shown in Table VIII and the gains noted in each instance. The graphs and percentage gains are given in Figs. 10—16.

FOSTER TEST

The data of the Foster test are given in Table IX and the graphic interpretation in Fig. 17.

COMMENT ON THE DATA OF THE EXPERIMENT

1. The data are too insufficient to draw sweeping conclusions from them, but are extremely suggestive in certain instances.
2. From the results of this experiment it would appear that the goals set for the formal gymnastics program may, except in the case of the development of posture, be attained as well through play and games as through formal gymnastics.
3. The work in formal gymnastics did not have for the formal gymnastics group (Room 201) any marked postural values.[19]
4. Obedience of the military and disciplinary type was achieved much more markedly in the play group than in the formal group. The question may arise whether the reaction to the formal training for a period of months resulting in a decrease in the readiness to respond to command was not the cause of the poor showing of the group trained by response commands. Does not the law of effect [20] enter into this situation?
5. The graphic representations (Figs. 1–7) of the gains in skill and alertness show larger gains for the play and game group, with one exception, the thrusting test (Fig. 3).

[19] A total of 544 minutes was devoted to posture exercises in Room 201. No time was given to posture work in Room 203.

[20] Thorndike, E. L. *Educational Psychology*. Vol. 1, pp. 172 ff. New York: Teachers College, 1919.

TABLE VI

Growth and Development Tests

October Measurements before Equalization *

Room 203	Weight	Height	Chest	Chest Expanded	Lung Capacity	Strength Right Arm	Strength Left Arm	Room 201	Weight	Height	Chest	Chest Expanded	Lung Capacity	Strength Right Arm	Strength Left Arm
Smith, B. . .	637	546	232	254	108	36	37	Fosdick, E. .	562	503	234	249	90	32	31
Fortier, A. . .	730	524	258	279	92	31	32	France, H. . .	623	524	244	261	106	42	39
Holzman, J. .	606	516	236	259	118	27	28	Friedrick, A. .	530	502	243	261	110	38	25
Jellinghaus, M.	683	531	249	276	118	41	38	Michelson, K.	773	541	277	296	112	55	52
Norton, P. . .	609	531	235	260	110	41	41	Miller, A. . .	496	499	228	251	92	35	32
Otis, A. . . .	775	569	260	277	126	40	40	Strayer, P. . .	675	548	250	273	122		43
Weiss, I. . .	620	541	228	255	114	34	33	Lehman, R. .	582	496	233	251	80	38	38
Reed, V. . . .	723	538	258	287	110	38	38	Herring, B. .	608	516	228	262	98	38	32
Armstrong, B.	706	495	254	275	88	26	20	Black, E. . .	690	538	235	260	110	37	35
Rice, C. . . .	677	543	251	270	102	39	36	Lowenstein, J.	876	540	281	301	100	42	37
Porter, C. . .	596	530	223	248	92	36	39	Tarbox, F. . .	562	551	237	260	120	42	28
Knox, A. . .	612	527	245	265	104	38	39	Edwards, E. .	814	546	267	285	112	42	39
Hazlett, J. . .	594	517	244	269	116	36	36	Grady H. . .	571	533	221	251	80	33	32
Fitch, F. . .	540	512	220	241	88	33	24	Holmes, R. .	643	513	249	265	95	41	42
Popper E. L. .	590	516	231	256	80	29	23	Thomas, R. .	620	520	254	265	112	48	44
Robertson, L.	668	545	233	254	109	38	36	Thomas, C. .	737	562	268	289	136	47	42
Lave, A. . . .	667	552	238	261	128	44	40	Carr, L. . .	557	528	230	251	110	32	30
Harress, G. .	724	536	255	283	127	47		Blackman, M.					118	30	28
Henry, R. . .	666	537	245	270	120	47	45	Ludnig, R. .	638	530			119	40	38
Buchner, F. .	691	526						Wilson, J. . .	620	518				31	31
Pottenger, C.					110	49	53	Duncan, W. .					106	48	46
								Finch, E. . .	621	529			124	43	41

* Determinations of weight, height, girth of chest, and girth of chest expanded are given with the decimal point omitted. If inserted, Smith, B., for example, in Room 203 would be 63.7.

TABLE VII

Growth and Development Tests

October Measurements Showing Equalization

Weight		Height		Chest		Chest Expanded		Lung Capacity		Strength Right Arm		Strength Left Arm	
Rm. 203	201	203	201	203	201	203	201	203	201	203	201	203	201
540	*496	495	*496	*220	221	*241	249	80	*80	*26	30	20	25
590	*530	512	499	223	228	*248	*251	88	80	27	31	23	28
594	557	516	*502	228	228	254	251	88	90	29	32	24	28
596	562	516	503	*231	230	254	251	92	92	31	32	28	30
606	562	517	513	232	233	255	251	92	95	33	33	32	31
609	*571	*524	516	233	234	256	260	102	98	34	35	33	31
612	582	526	518	235	235	259	260	104	100	*36	37	36	32
620	608	527	520	236	237	260	261	108	106	36	38	36	32
637	620	530	524	238	243	261	261	109	106	36	38	36	32
666	620	531	528	244	244	265	262	110	110	38	38	37	35
*667	621	531	529	*245	249	269	265	110	110	38	40	38	37
668	623	536	530	245	250	*270	265	110	110	38	41	38	38
*677	638	537	533	249	254	270	273	114	112	39	42	39	38
683	643	538	538	251	267	275	285	116	112	40	42	39	39
691	675	541	540	254	268	276	289	118	112	41	42	40	39
706	690	543	541	255	277	277	296	118	118	41	42	40	41
*723	737	545	546	258	*281	279	301	120	119	44	*43	41	*42
*724	773	546	548	258		283		126	120	47	47	45	*42
730	814	552	551	260		287		127	122	47	48	53	*43
775	*876	*569	562					*128	124	49	*48		44
									*136		*55		46
													52
10,323	10,325	9,539	9,539	3,899	3,898	4,280	4,280	2,032	2,036	688	688	678	678

*Starred scores have been eliminated for equalization.

Smith, B., for example, in Room 203 would be 63.7.

TABLE VIII

GROWTH AND DEVELOPMENT TESTS—MEASUREMENTS AFTER EQUALIZATION

	Room	Pupils	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total Net Gain*	Average Net Gain
Weight	203	Oct.	637	730	606	683	609	775	620	706	596	612	594	540	590	668	666	691					
		May	695	714	635	740	646	790	680	768	658	650	637	588	667	696	716	743					
		Gain	58		29	57	37	15	60	62	62	38	43	48	77	28	50	52				70.0	4.37
		Loss		16																			
	201	Oct.	562	623	773	675	582	608	690	562	814	643	620	737	557	638	620	621					
		May	587	670	773	709	601	649	740	625	924	692	673	791	586	655	612	621					
		Gain	25	47	0	34	19	41	50	63	110	49	53	54	29	17		0				58.3	3.64
		Loss															8						
Height	203	Oct.	546	516	531	531	541	538	495	543	530	527	517	512	516	545	552	536	537	526			
		May	554	525	549	543	549	543	502	553	545	535	530	523	530	556	566	548	548	537			
		Gain	8	9	18	12	8	5	7	10	15	8	13	11	14	11	14	12	11	11		19.7	1.09
		Loss																					
	201	Oct.	503	524	541	499	548	516	538	540	551	546	533	513	520	562	528	530	518	529			
		May	516	531	552	510	563	526	544	558	562	553	553	526	531	574	538	540	520	529			
		Gain	13	7	11	11	15	10	6	18	11	7	20	13	11	12	10	10	2	0		18.7	1.04
		Loss																					
Girth of Chest	203	Oct.	232	258	236	249	235	260	228	258	254	251	223	244	233	238	255	245					
		May	257	263	253	270	250	270	256	267	265	259	250	268	256	270	280	264					
		Gain	25	5	17	21	15	10	28	9	11	8	27	24	23	32	25	19				29.9	1.87
		Loss																					
	201	Oct.	234	244	243	277	228	250	233	228	235	237	267	221	249	254	268	230					
		May	243	251	255	276	243	268	248	247	245	255	295	248	268	275	286	240					
		Gain	9	7	12		15	18	15	19	10	18	28	27	19	21	18	10				24.5	1.53
		Loss				1																	

Girth of Chest Expanded	203	Oct.	254	279	259	276	260	277	255	287	275	265	269	256	254	261	283	270						
		May	270	280	272	290	263	288	270	288	276	272	280	264	270	284	300	280						
		Gain	16	1	13	14	3	11	15	1	1	7	11	8	16	23	17	10				16.7	1.04	
		Loss																						
	201	Oct.	249	261	261	296	273	251	262	260	301	260	285	251	265	265	289	251						
		May	257	267	268	302	285	260	268	261	318	271	312	266	282	292	302	257						
		Gain	8	6	7	6	12	9	6	1	17	11	27	15	17	27	13	6				18.8	1.17	
		Loss																						
Lung Capacity	203	Oct.	108	92	118	118	110	126	114	110	88	102	92	104	116	88	80	109	127	120	110			
		May	108	100	120	122	122	134	120	128	112	111	110	118	118	104	108	112	146	120	144			
		Gain	0	8	2	4	12	8	6	18	24	9	18	14	2	16	28	3	19	0	34	225	11.84	
		Loss																						
	201	Oct.	90	106	110	112	92	122	98	110	100	120	112	80	95	112	110	118	119	106	124			
		May	98	102	120	130	98	146	108	128	116	134	126	100	100	130	110	108	128	110	120			
		Gain	8		10	18	6	24	10	18	16	14	14	20	5	18	0		9	4		176	9.26	
		Loss		4														10			4			
Strength of Right Arm	203	Oct.	31	27	41	41	40	34	38	39	36	38	36	33	29	38	44	47	47	49				
		May	37	42	47	43	49	42	49	41	47	40	41	33	39	39	50	51	50	58				
		Gain	6	15	6	2	9	8	11	2	11	2	5	0	10	1	6	4	3	9		110	6.11	
		Loss																						
	201	Oct.	32	42	38	35	38	38	37	42	42	42	33	41	47	32	30	40	31	48				
		May	42	49	42	43	32	43	40	41	48	49	36	43	57	31	39	42	40	51				
		Gain	10	7	4	8		5	3		6	7	3	2	10		9	2	9	3		80	4.44	
		Loss					6			1						1								
Strength of Left Arm	203	Oct.	37	32	28	38	41	40	33	38	20	36	39	39	36	24	23	36	40	45	53			
		May	43	39	38	45	43	48	41	49	30	32	42	42	41	31	32	39	49	49	52			
		Gain	6	7	10	7	2	8	8	11	10		3	3	5	7	9	3	9	4		107	5.63	
		Loss										4									1			
	201	Oct.	31	39	25	52	32	38	32	35	37	28	39	32	44	30	28	38	31	46	41			
		May	41	44	31	60	38	40	40	40	40	40	48	36	50	30	39	40	41	50	39			
		Gain	10	5	6	8	6	2	8	5	3	12	9	4	6	0	11	2	10	4		109	5.73	
		Loss																			2			

* Determinations of weight, height, girth of chest and girth of chest expanded are given without the decimal point. The values are indicated in the Total Net Gain column in which the decimal is used to denote actual gain.

6. The graphs (Figs. 10–16) of gains in the organic tests show a larger gain for the play and game group than for the formal group in weight, height, girth of chest, lung capacity, and strength of right arm. On the other hand the formal group gained slightly more in strength of left arm and chest expanded. The gains of the play-game group were marked, the gains of the formal gymnastics group were very small, when they did occur.

   The formal group (Room 201) had corrective and breathing exercises four days a week for an entire school year; the play-game group (Room 203) had none at all. In spite of this difference the play-game group gained more in size of chest (29.9 units compared with 24.5) and more in the lung capacity test (225 to 176).

   It should be remembered that the play-game group had natural respiratory gymnastics because their vigorous play by stimulation of the respiratory mechanism resulted in increased respiratory activity. This process was physiological, and suggests by its results the absurdity of breathing exercises.[21]
7. The evidence from this experiment seems to show that the usual claims made for formal gymnastics are not well founded, and that a game program is more likely in many instances to achieve the goals set for the formal program.
8. The results secured in this experiment show a high degree of reliability as evidenced by statistical study of them.
9. The chief value of the experiment is the fact that it proves conclusively that more such studies should be made.

Interpretation of Results

To draw conclusions from the experiment one must make a comparison of the scores made by Room 203 and Room 201 in the different tests. Since the two groups were equalized for the separate tests and since there was not the same number of individuals in each group one cannot compare the net total gain of one class with that of the other class. One can compare, however, the average

[21] The argument for breathing exercises is given by Skarstrom, W. S., in "Gymnastic Teaching." *American Physical Education Review*, 380–382. The argument against it is given by Williams, J. F., in *Personal Hygiene Applied*. Chap. VIII. Philadelphia: W. B. Saunders Co., 1922.

TABLE IX

Foster Heart Test

Pulse before and after Exercise

Room 203	October		1' After	May		1' After	Room 201	October		1' After	May		1' After
	Before	After		Before	After			Before	After		Before	After	
1. Rice . .	82	128	80	72	144	84	1. Vogel .	96	134	108	96	124	100
2. Weiss .	108	144	120	96	120	108	2. Lehman .	132	140	132	132	168	126
3. Porter .	82	104	92	92	128	88	3. Herring .	116	148	104	108	132	108
4. Hazlett .	98	118	84	84	144	96	4. Black .	88	118	88	84	120	84
5. Knox .	100	132	96	108	132	102	5. Lowenstein. .	120	132	120	126	126	96
6. Fitch .	92	112	92	90	114	96	6. Blackman	124	132	120	90	126	96
7. Buchner	112	128	108	84	120	108	7. Tarbox .	88	124	104	78	108	84
8. Smith .	88	120	96	90	124	84	8. Wilson .	92	116	100	72	102	72
9. Popper .	108	136	112	132	150	132	9. Edwards	108	100	96	102	120	114
10. Robertson	92	128	108	72	164	84	10. Grady .	104	124	108	90	126	96
11. Lave . .	104	124	104	96	132	96	11. Holmes .	84	92	84	78	108	84
12. Reed . .	92	112	88	84	132	84	12. Thomas, Robert.	80	100	80	84	108	84
13. Harress .	88	100	90	78	132	84	13. Finch .	120	128	116	120	144	108
14. Henry .	92	112	92	90	126	90	14. Thomas, Cid . .	88	120	88	90	108	78

or mean gain of one class with the mean gain of the other class. The differences between the averages of Room 203 and Room 201, then, determine the conclusions of the experiment. The differences between the average scores of the two groups are shown by Table X. It will be seen that, with three minor exceptions, the means of Room 203 exceed those of Room 201. The exceptions are in the case of strength of left forearm (grip), chest expanded, and thrusting.

Thus in nearly every case the difference between the average scores favors Room 203. But how significant are these results? Are we justified in saying that they show conclusively that the method of instruction used with Room 203 is superior to that used with Room 201? Do the results warrant our saying that repetitions of the experiment will show similar findings? What are the chances that repeated experiments with equivalent groups will yield like results. In other words, what is the reliability of our findings? The reliability of the results determines the value of the conclusions.

We have statistical means of determining the reliability of the differences between the means or averages of the two groups. One such way is by means of the standard deviation of the difference, S.D. Difference. We can be practically certain that the true difference between the improvement means will lie between the obtained difference and plus and minus three times the S.D. of the difference. For example, in the alertness (crosses) test,

$$\begin{aligned} \text{Mean of } 203 &= 8.5 \\ \text{Mean of } 201 &= 4.4 \\ \text{Difference of Means} &= 4.1 \\ \text{S.D. Difference} &= 1.48 \end{aligned}$$

We can be practically certain that the true difference (from unlimited repetitions) will lie between

$$\begin{aligned} 4.1 + 3(1.48) &\text{ and } 4.1 - 3(1.48) \text{ or} \\ 4.1 + 4.44 &\text{ and } 4.1 - 4.44 \text{ or} \\ 8.54 &\text{ and } -.34 \end{aligned}$$

That is, there is nearly but not quite practical certainty that the true difference between the means favors the type of instruction given Room 203.

We may express this fact of reliability in a more convenient manner by using the Experimental Coefficient. The Experimental

Coefficient $= \frac{\text{difference}}{2.78 \times \text{S.D. Difference}}$. In the test just referred to the Experimental Coefficient $= \frac{4.1}{2.78 \times 1.48} = \frac{4.1}{4.11} = .997$. This means that the experimental difference of 4.1 between the mean score of Room 203 and the mean of Room 201 is .997 as large as it needs to be (it should be 1.0) in order that we may be practically certain that the method of teaching used in Room 203 is truly better than the method used in Room 201.

Referring to Table X let us look at the column headed Equated Differences. The Equated Difference $= \frac{\text{difference}}{\text{smaller improvement}}$ or, in the case of the "crosses" test, the Equated Difference $= \frac{4.1}{4.4} = .93$. This means that Room 203 is .93 ahead of Room 201 or that Room 201 would have to work .93 longer to equal the results of Room 203.

The formulas used in obtaining the measures in Table X are given in McCall's *How to Measure in Education*.[22]

Looking again at Table X what general conclusions can be drawn regarding the experiment? It has already been noted that, in nearly all cases, the differences between the means of scores for Room 203 and Room 201 favor Room 203. Looking at the column of Experimental Coefficients we see, for all tests, an average experimental coefficient of .30. That is, on the whole the difference between the two classes favors Room 203; but this difference is only .30 as large as it should be in order that we may be practically certain that the methods used in teaching in Room 203 are truly better than the methods used in teaching in Room 201.

From the column of Equated Differences we see that the average from all tests is 1.57. That is, Room 201 is 1.57 behind Room 203. The median of Equated Differences gives .38, which is perhaps a

[22] Thorndike, E. L. *Mental and Social Measurements*. New York: Teachers College, 1919.

Rugg, H. O. *Statistical Methods Applied to Education*. Boston: Houghton Mifflin Co., 1917.

McCall, W. A. *How to Measure in Education*. Chap. XVI and XVII. New York: Macmillan Company, 1922.

TABLE X

STATISTICAL TREATMENT OF RESULTS

TEST	Room 203 Means	Room 201 Means	Difference	S.D.	Experimental Coefficient	Equated Differences
1. Weight	4.4	3.6	.8	2.09	.13	.22
2. Height	10.9	10.4	.5	1.31	.13	.05
3. Chest normal	1.9	1.5	.4	1.30	.11	.28
4. Chest expanded	1.0	1.2	−.2	.28	−.25	−.20
5. Lung capacity	18.8	9.2	2.6	3.04	.31	.28
6. Strength Right forearm	6.1	4.4	1.7	1.25	.48	.38
7. Strength Left forearm	5.6	5.7	−.1	1.22	−.03	−.02
		Average	.81	1.5	.13	.14
8. Creek	4.1	1.7	2.4	4.00	.22	1.40
9. Bean bag	4.2	.7	3.5	2.10	.60	5.00
10. Thrusting	.7	1.4	−.7	1.97	−.13	−1.00
11. Stilts	19.2	13.9	5.3	4.50	.42	.38
12. Balance beam	5.2	2.9	2.3	3.06	.27	.79
13. Alertness (dots)	2.5	−.2	2.7	1.09	.89	13.50
14. Alertness (crosses)	8.5	4.4	4.1	1.48	1.00	.93
		Average	2.8	2.60	.47	3.0
		Total Average	1.8	2.05	.3 *Median*	1.57 .38

In Figs. 1–9 on pages 358–359 the gains and losses are represented by base line diagrams which are arbitrary assignments of values to the differences found in the tabular data. For example, in Fig. 1, which represents the gains and losses in the Creek Test, for Room 203 gains of 12 and 15 in Table II are represented by score values of 1 and 2 respectively, and a loss of 15 is represented by −2. The figure should be interpreted as follows: eight students made no gain, one student made a gain of 1 unit (12 score points), four students made a gain of 2 units (15 score points), and one student made a loss of 2 units (15 score points).

better measure in this case. This would show Room 201 to be .38 behind Room 203.

It should be noticed that for the seven tests involving skill of performance the average gain of Room 203 over Room 201 is 2.8. This difference is .47 (experimental coefficient) as large as it should be to give practical certainty that the type of instruction used with Room 203 is truly better than that used with Room 201 as judged by ability in the tests given.

Interpretation of Graphs

In Figs. 1–17 which follow on pages 358–360 the shaded portion of the figure in each case represents Room 201, the group which was given the formal gymnastics program; and the part that is not shaded represents Room 203, the play-game group.

RELATIVE GAIN AND LOSS—OCTOBER TO MAY

FIG 1 CREEK TEST

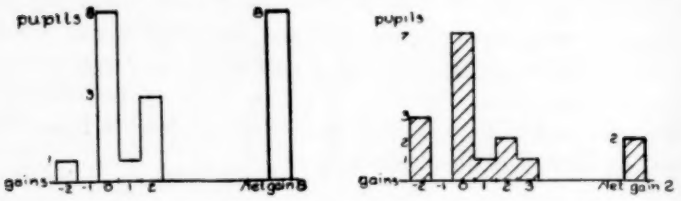


FIG 2 BEAN BAG TEST

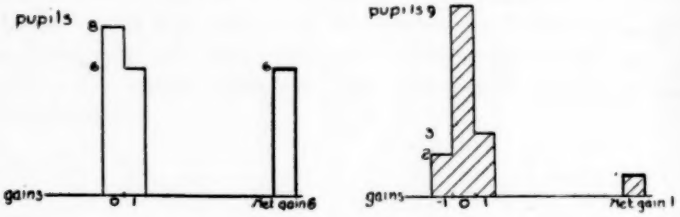


FIG 3 THRUSTING TEST

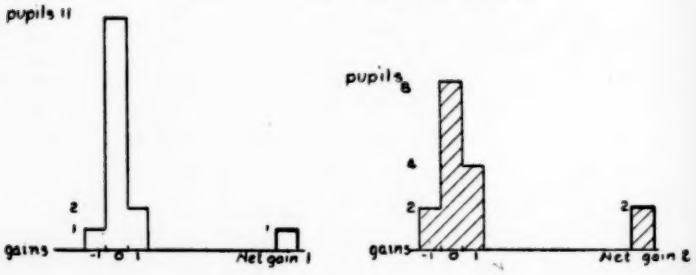


FIG 4 STILTS TEST

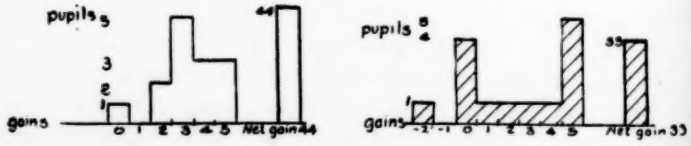


FIG 5 BALANCE BEAM TEST

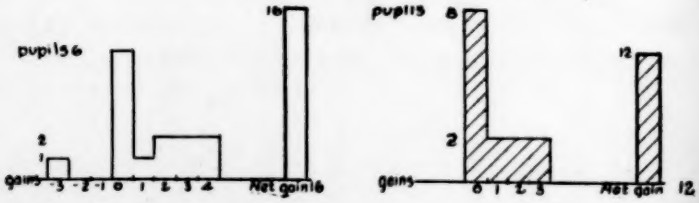


FIG 6 ALERTNESS TEST
DOTS

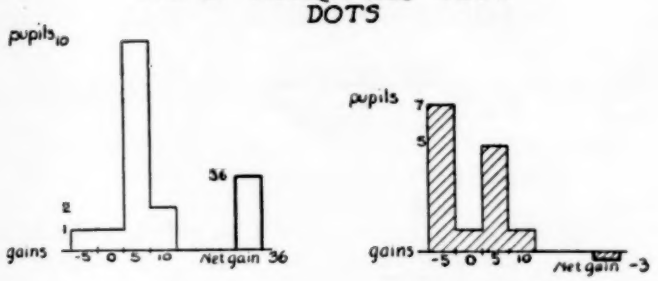


FIG. 7 ALERTNESS TEST
CROSSES

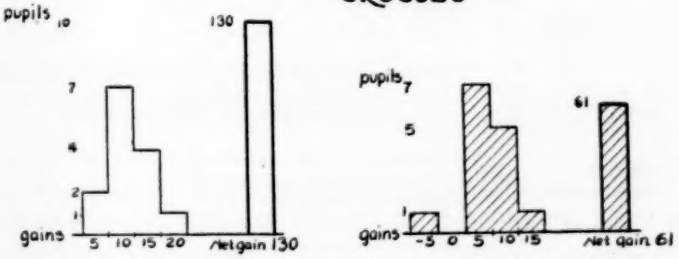
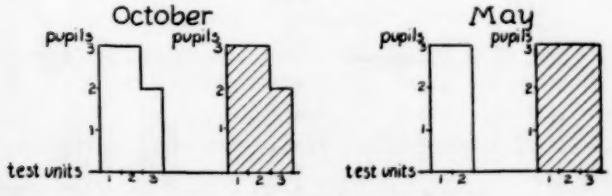


FIG. 8 OBEDIENCE TEST

FIG. 9 POSTURE TEST



FIGS. 10–16. ORGANIC GROWTH AND DEVELOPMENTAL CHANGE—OCTOBER TO MAY

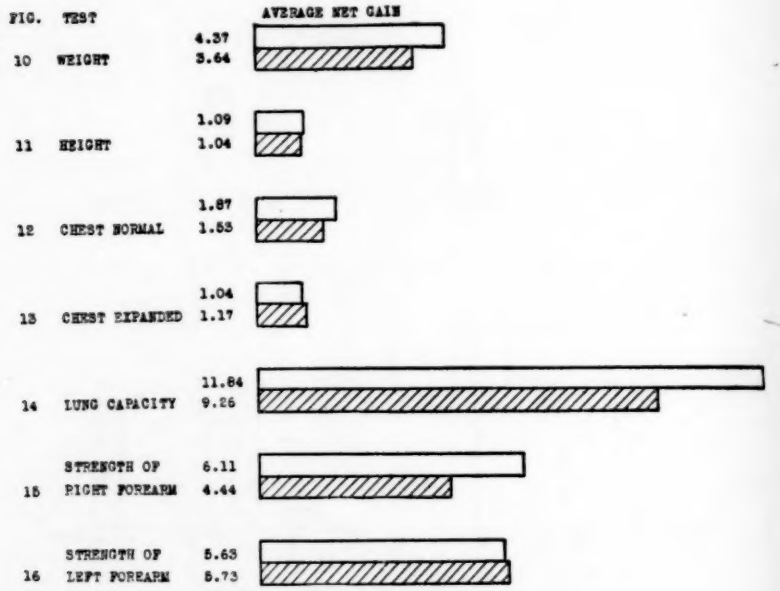
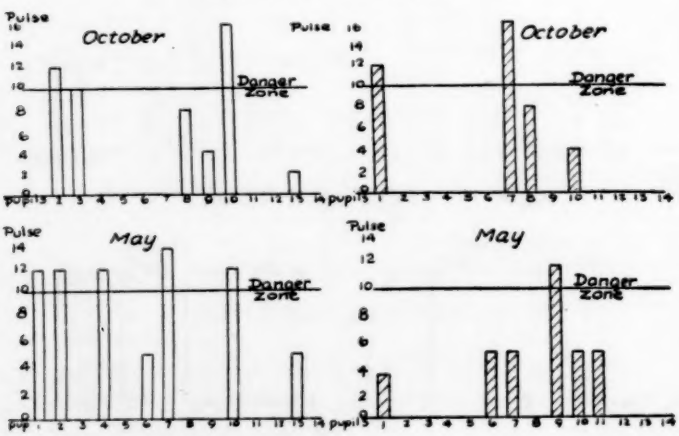


FIG. TEST
AVERAGE NET GAIN
10 WEIGHT 4.37 3.64
11 HEIGHT 1.09 1.04
12 CHEST NORMAL 1.87 1.53
13 CHEST EXPANDED 1.04 1.17
14 LUNG CAPACITY 11.84 9.26
15 STRENGTH OF RIGHT FOREARM 6.11 4.44
16 STRENGTH OF LEFT FOREARM 5.63 5.73

FIG 17. Changes in Heart Efficiency-October to May
Measured by the Foster Test.



EXPERIMENTS IN PRESSURE COOKERY

By DAY MONROE, MARY I. BARBER, and RUTH PARRISH
Department of Foods and Cookery, Teachers College

The pressure cooker is rapidly coming into favor with the progressive housewife in her effort to save time, labor, and money by replacing yesterday's equipment with more modern devices. In the year 1920, 2509 pressure and steam cookers were bought for the farm kitchens in thirty states of the North and West, according to Miss Florence E. Ward's report on "The Status and Results of Home Demonstration Work"; while during the same period 1661 fireless cookers were made at home and 310 purchased. These figures, however, do not show the actual number of cookers installed during that year because they do not include a record of cookers purchased by women living in larger towns and cities. In the same report it is estimated that 1,008,519 hours have been saved by the use of these and other household helps.

These figures raise the question whether the pressure cooker really effects an economy of time and labor; whether the housewife should be encouraged to invest her money in it; and particularly, how its advantages compare with those of the fireless cooker. The teacher of household arts should know both its advantages and its limitations, as compared with the fireless cooker and with the customary methods of cooking, so that she can intelligently advise students and housewives as to the desirability of purchasing pressure cookers, and as to the best methods of using them. As in the case of most devices when first placed on the market, there are enthusiasts who would attempt to use the pressure cooker for purposes for which it is not fitted. From some glowing claims it would seem that it could supplant every other method of cooking.

During the past year, the students in classes in Investigation Cookery in Teachers College have spent many hours studying the pressure cooker. The investigation has aimed to determine the optimum times and pressures to be used for various foods and food combinations, the effect upon foods, and the cost of operation. For purposes of comparison, parallel processes have been carried on

with the fireless cooker, and by the usual methods of cooking on the gas stove.

The talking points for the pressure cooker are that it is decidedly a time and fuel saver, and yields products of exceptionally good flavor. The principle of operation is that as pressure is increased the temperature is raised, and thus the time of cooking is materially shortened. Unfortunately, all foods will not stand the same amount of pressure; so the problem is to determine the highest pressure which will cook a food thoroughly in the shortest length of time without impairing its flavor, appearance, or value. In this connection, one of the most important questions to be considered is whether the potency of the vitamins in foods, especially in vegetables, is lessened by the high temperature of the pressure cooker. A special investigation carried on in coöperation with the department of biochemistry tends to show that the loss of the C vitamin in cabbage is no greater with the pressure cooker than by the ordinary method of boiling.

Although the pressure cooker can be used for short-time processes, it is more efficient for the longer processes where the saving of time and fuel is significant. It is especially good for canning vegetables and meats, for the long cooking of cereals, fruit cake, baked beans, tougher cuts of meat, whole hams, tongues, pot roasts, and soups. The most advantageous way of using the pressure cooker is to cook two or three things at one time. This means the selection of foods which can be cooked with approximately the same time and pressure. Of course a food requiring long cooking can be put in first, and when partly done the pressure can be run down, the cooker opened, and other foods requiring a shorter time put in. But this is troublesome and in general it is better to choose combinations which do not make it necessary. The foods cooked together need not form a complete meal. Cook the breakfast cereal, a meat loaf, or your baked beans for the next day with your dinner. The desserts which can be prepared in the pressure cooker are limited; hence the combination of meat, vegetables, and dessert should be used only occasionally. Table I shows some of the menus which can be successfully cooked in the pressure cooker and the small amount of gas consumed.

Throughout the investigation in the comparative tests for fuel consumption the gas required for cooking was carefully metered. In every long process, the pressure cooker was a decided fuel saver.

TABLE I

COMPARATIVE FUEL COSTS

FOOD	METHOD OF COOKING	PRESSURE	FUEL	COST OF GAS[1]
Menu I[2]				
Ham	Pressure Cooker	20 lbs.—16 min.	15.2 cu. ft.	$.0190
Escalloped Potatoes	and			
Onions	Stove and Oven		46.8 cu. ft.	.0585
Menu II				
Swiss Steak	Pressure Cooker	10 lbs.—15 min. 20 lbs.—20 min.	4.3 cu. ft.	.0054
Potatoes				
Onions				
Carrots				
Steamed Pudding				
Menu III				
Ham with Apples	Pressure Cooker	15 lbs.—12 min.	3.5 cu. ft.	.0044
Sweet Potatoes				
Celery				

It was surprising to many to find that it consumed much less gas than the fireless cooker. This is due to the fact that a constant pressure can be maintained by the simmering burner which consumes a very small amount of gas, while a hot flame is required for heating the stones for the fireless cooker to a sufficiently high temperature for cooking. The most marked difference in fuel consumption, however, is to be observed when pressure cooked food is compared with that cooked in the oven. Oven burners are gas eaters—even the modern type specially constructed to use as little gas as possible.

Table II shows the comparative amounts of fuel consumed with the fireless cooker, the pressure cooker, and the customary method of cooking. The figures include the total gas consumption for each process. If some cooking was done, either before or after putting the food into the pressure or fireless cooker, the gas used is included in the figures given.

[1] The cost of gas is computed at $1.25 per thousand cubic feet.

[2] The potatoes from the pressure cooker were browned under the broiler.

TABLE II—METERING

FOOD	PRESSURE	FUEL	COST OF GAS[1]
Oatmeal			
Pressure Cooker	20 lbs.—10 min.	4.4 cu. ft.	$.0055
Fireless Cooker		10.6 cu. ft.	.0132
Ordinary Method		5.2 cu. ft.	.0065
Soup Stock			
Pressure Cooker	15 lbs.—50 min.	8.2 cu. ft.	.0102
Fireless Cooker		17.6 cu. ft.	.0220
Ordinary Method		9.8 cu. ft.	.0122
Baked Beans			
Pressure Cooker	20 lbs.—30 min.	19.7 cu. ft.	.0246
Fireless Cooker		19.5 cu. ft.	.0244
Ordinary Method		51.0 cu. ft.	.0637
Macaroni with Tomatoes			
Pressure Cooker	15 lbs.—15 min.	4.0 cu. ft.	.0050
Fireless Cooker		7.4 cu. ft.	.0092
Top of Stove		3.7 cu. ft.	.0046
Top of Stove and Oven		32.0 cu. ft.	.0400
Roast Veal			
Pressure Cooker	20 lbs.—25 min.	6.9 cu. ft.	.0086
Fireless Cooker		12.5 cu. ft.	.0156
Ordinary Method		47.6 cu. ft.	.0595
Stuffed Fowl			
Pressure Cooker	15 lbs.—30 min. 10 lbs.—20 min.	16.0 cu. ft.	.0200
Fireless Cooker		12.3 cu. ft.	.0154
Ordinary Method		51.8 cu. ft.	.0647
Chicken Fricassee			
Pressure Cooker	15 lbs.—20 min. 10 lbs.—20 min.	9.3 cu. ft.	.0116
Fireless Cooker		18.1 cu. ft.	.0226
Ordinary Method		14.9 cu. ft.	.0186
Swiss Steak			
Pressure Cooker	15 lbs.—40 min.	10.5 cu. ft.	.0131
Fireless Cooker		13.5 cu. ft.	.0169
Ordinary Method		44.0 cu. ft.	.0550
Halibut			
Pressure Cooker	10 lbs.—10 min.	9.4 cu. ft.	.0117
Fireless Cooker		14.2 cu. ft.	.0177
Ordinary Method		29.5 cu. ft.	.0369
Fruit Cake			
Pressure Cooker	10 lbs.—45 min. 15 lbs.—30 min.	12.7 cu. ft.	.0169
Fireless Cooker			
Baked		19.4 cu. ft.	.0242
Steamed		22.2 cu. ft.	.0277
Ordinary Method		25.6 cu. ft.	.0320

[1] The cost of gas is computed at $1.25 per thousand cubic feet.

Based on the experiences and results gained from the investigation the following general rules have been formulated to ensure success in using the pressure cooker.

1. There should be water in the bottom of the cooker to produce steam for cooking. The amount of water necessary depends upon the cooking to be done. Some water is absorbed by the food, and in some instances there is a slight steam leakage; so sufficient water must be put in to allow for these contingencies. For all general purposes one cup of water is enough, but in steaming a pudding, where the pet cock is left open for a time and there is evaporation, four cups are needed. The newer type of cooker is equipped with a rack and inset pans in which the foods can be placed. These inset pans make it possible to cook three separate dishes in the cooker at one time. But even though only one food is being cooked, it is generally better to use the pan so that the amount of water around the food can be carefully regulated. For example, in cooking cereal if only enough water is added to make the cereal of the proper consistency, by the time it is done it is apt to stick to the bottom of the cooker. On the other hand, if the cereal and the correct amount of water are placed in the inset pan and one and one-half more cups of water for steam are placed in the bottom of the cooker, there is no danger of its sticking.

2. Always add less water to the food to be cooked in a pressure cooker than would be needed if cooking were done on top of the stove or in the oven. The cooking in the pressure cooker is done in a moist atmosphere and with the cover tightly clamped down; hence the loss of water is much less than by ordinary methods.

3. It is advisable to use a mat or low rack in the bottom of the cooker so that the inset pan will be raised sufficiently to allow a free circulation of water in the cooker.

4. Although all directions for the use of the cookers call for careful cleaning and adjustment of the lid, too much emphasis cannot be placed upon this point, because even a drop of water or a few specks of dust will cause steam leakage. The ball and socket of the safety valve also need scrupulous care. If by chance the ball becomes rough, there is an escape of steam and a high pressure cannot be reached. It is therefore wise to keep an extra ball on hand.

5. The cover should be tightly clamped in place.

6. The pet cock should be left open until there is a good, steady flow of steam, and then closed.

7. When the cooking is finished the pressure at which the pet cock should be opened varies according to the food in the cooker. When canning, the pressure should *always* be run to zero before the pet cock is opened. If this is not done the liquid will be drawn from the jars because of the vacuum formed, and the jars may burst. The same rule should be followed in cooking meat, so that the meat will not become "shreddy" or lose its juices. With a stew or flank steak the pet cock may be opened at ten pounds.

8. While we speak of using the highest temperature possible in order to cook food quickly and thereby save time, for most purposes it is not wise to use a higher pressure than 20 pounds. With as high a pressure as 25 pounds, close and constant attention is required because the pressure runs up quickly. Of course there is a safety valve which will emit the steam so that there will be no danger of the cooker exploding, but when this valve opens there is so strong a rush of steam that the meats and vegetables are apt to be torn. In canning, if this were to happen, it would be fatal to the jars, the products, or both.

The investigation has yielded the following specific suggestions for the successful use of the pressure cooker in preparing typical foods.

It is difficult to make light steamed puddings or brown bread with the cooker, but it can be done if due care is taken. The pressure must not be run up too soon because the high temperature will cause the layer of dough next to the mould to cook, forming a hard crust which prevents expansion. The pet cock should be left open during the first part of the cooking, giving the pudding a chance to rise. The pressure should then be raised *slowly* to ten or fifteen pounds, and the cooking should be completed. Coarse flours or corn meal seem preferable to wheat flour for these puddings. Steamed puddings, brown bread, or fruit cakes must always be covered with several thicknesses of waxed paper or close fitting lids so that the tops will be kept dry. Puddings cooked in the pressure cooker are generally darker in color than those cooked in an ordinary steamer because the high temperature caramelizes the sugar.

In the pressure cooker, seasonings are thoroughly blended and seem to be more completely absorbed by the food than when other methods are employed. For instance, fowl has a noticeable flavor of the stuffing, the seasonings having been driven through the meat.

Dried beans, peas, or lentils need not be soaked for pressure cooking. The time of cooking must be lengthened and more water must be added than would be used in the cooker with soaked legumes. While it takes no less time to cook potatoes in the cooker than to boil them on top of the stove, potatoes cooked by the pressure method are more mealy and are more comparable in texture and appearance to baked potatoes.

Such meats as pot roasts or meat for stews must be browned in the bottom of the cooker or in an inset pan over the direct flame before the water is added. The steam cooking alone does not give the desired brownness. A "roast" chicken can be browned under the gas broiler flame, or in an oven, for a few minutes after it is taken from the cooker.

There is little to be gained in canning fruits in the pressure cooker because the time required for sterilization of fruits is short and the cooker holds but few jars. On the other hand, in the case of meats and most vegetables the cooker is advantageous for canning because the long time required for sterilization is materially shortened when the jars are put under pressure. Then, too, the pressure cooker method is safer than others because the high temperature reduces the danger of spoilage to a minimum. If you have your own garden and wish to can a few vegetables from week to week, the pressure cooker will shorten the time and will save fuel.

The following recipes are representative of the types we consider best adapted for cooking with the pressure cooker. Since these were used in the comparative fuel tests, directions for the use of the fireless cooker and for the ordinary method of cooking are included.

Baked Beans

Navy beans, 2¼ cups
Molasses, 2 tablespoons
Salt, 2 teaspoons
Bacon, 4 oz.
Mustard, ½ teaspoon
Brown sugar, 2 teaspoons
Onion, medium, 1
Pepper, speck

Water:

In bean pot, 3½ cups
In pressure cooker,* ½ cup
In fireless cooker, 1 cup

Soak the beans overnight. Drain, add fresh water, and parboil for three minutes. Drain.

*The amount of water given is for the inset pan only. Additional water was put into the bottom of the cooker.

IN BEAN POT

Put the parboiled beans into an earthen bean pot and bury the onion in the center of the beans. Mix together the sugar, salt, pepper, molasses, and 2½ cups of water. Pour this mixture over the beans, and lay the thin slices of bacon over the top. Cover. Bake in a slow oven (250° F.) for 6 hours. After about 3½ hours of baking add the remaining 1 cup of water so that the beans will not be too dry.

IN PRESSURE COOKER

Mix the sugar, salt, pepper, molasses, and ½ cup of water together. In an inset pan place the parboiled beans and in the center bury the onion. Pour over the beans the water mixed with the seasonings. On top lay the strips of bacon. In the bottom of the pressure cooker place 2 cups of water. Put in the rack, and the inset pan filled with beans. Cook at a pressure of 20 pounds for 30 minutes. Reduce the pressure to 10 pounds before opening the pet cock. Then take the beans from the cooker and put under the broiler flame of the gas stove for 5 minutes to brown the bacon.

IN FIRELESS COOKER

Heat 2 stones to 550° F. which requires about 25 minutes.

Mix the sugar, pepper, salt, molasses, and 1 cup of water. In a fireless container place the parboiled beans, and bury the onion in the center. Over the beans pour the water and seasonings, and lay the strips of bacon on top. Heat for 5 minutes. Place the pan in the cooker, between 2 stones, leaving the beans uncovered so the bacon will brown. Cook for 5 hours.

COMPARISON OF PRODUCTS

All beans were well cooked, but not too soft. The beans cooked in the fireless cooker lacked the flavor of those cooked in the oven and pressure cooker.

OATMEAL

Rolled oats, 1 cup

Salt, ¼ teaspoon

Water:

In upper part of double boiler, 2½ cups
In inset pan of pressure cooker, 2¼ cups
In container for fireless cooker, 2¼ cups

ON TOP OF STOVE—IN DOUBLE BOILER

Heat 2½ cups of water to boiling in the upper part of the double boiler. Add salt. Slowly stir in the rolled oats. Cook for 5 minutes over the direct flame, stirring constantly. Continue the cooking over hot water for 30 minutes.

IN PRESSURE COOKER

Heat 2¼ cups of water to boiling in an inset pan. Add salt. Slowly stir in the rolled oats. Cook for 5 minutes over the direct flame, stirring constantly. In the bottom of the pressure cooker put 1 cup of hot water. Put in the rack, and the inset pan. Cook at a pressure of 20 pounds for 10 minutes. Release steam by opening pet cock when pressure has run down to 10 pounds.

IN FIRELESS COOKER

Heat 2 stones to 550° F., which requires about 25 minutes.

When stones are almost ready, heat 2¼ cups of water to boiling in a fireless cooker container. Add salt. Slowly stir in the rolled oats. Cook for 5 minutes over the direct flame, stirring constantly. Cover the container tightly and place in the well of the cooker, between the two stones. Leave in the cooker 3 hours.

COMPARISON OF PRODUCTS

All three of the oatmeals were well done. That cooked in the double boiler was somewhat drier than the two others, though more water was used.

Brown Soup Stock

Shin of beef, 2 lbs.
Carrots, diced, ½ cup
Turnips, diced, ½ cup
Celery, cut into small pieces, ½ cup
Onions, cut into slices, 3 medium-sized
Peppercorns, ½ teaspoon
Cloves, 6
Bay leaf, ½
Thyme, 2 sprigs
Marjoram, 1 sprig
Parsley, 2 sprigs
Salt, 1 teaspoon

Water:

For kettle on top of stove, 5½ cups
For pressure cooker, 4 cups
For fireless cooker container, 4 cups

Remove beef from bone and cut into small pieces. Remove some of the marrow from the bone.

ON TOP OF STOVE

Brown meat and onion in marrow and fat trimmings in the bottom of the kettle to be used for cooking. Add vegetables, seasonings, bone, and cold water, and cook for 1½ hours.

IN PRESSURE COOKER

An inset pan is not used. Brown meat and onion in marrow and fat trimmings in bottom of cooker. Add vegetables, seasonings, bone, and cold water. Cook, using a pressure of 15 pounds for 50 minutes. Reduce the pressure to 10 pounds before opening the pet cock.

IN FIRELESS COOKER

Heat 2 stones for cooker to 550° F., which requires about 25 minutes.

Brown meat and onion in marrow and fat trimmings in bottom of fireless cooker container. Add vegetables, seasonings, bone, and cold water. Heat to boiling point over direct flame. Cover container tightly, and put it into the fireless cooker between the two stones. Cook for 3 hours.

COMPARISON OF PRODUCTS

Although the same amount of soup was produced at the end by each of the three processes, it was necessary to use more water with the kettle on top of the stove because of the greater evaporation.

The soup made in the pressure cooker was clearer, darker in color, and richer in flavor than that made by either of the other methods. The soup from the pressure cooker jellied when cold. The pressure cooker extracted the gelatine from the meat and bone and drew out the flavor.

Stuffed Fowl

Fowl, 3 lbs. or a little less — Stuffing

Clean a fowl and prepare it for cooking. Fill with stuffing; truss. Spread over the breast a mixture of 3 tablespoons butterine and 2 tablespoons flour, rubbed together.

IN OVEN

Place on a rack in the roasting pan and put into a hot oven (450° F.) until the flour browns. Reduce the heat (400° F.), and continue roasting until the fowl is tender (3 hrs. 35 mins.).

IN PRESSURE COOKER

Place fowl, stuffed and trussed, on a rack in an inset pan. Add ¼ cup of water. Into the bottom of the cooker put 1½ cups of water, the rack, and the inset pan. Cook for 30 minutes at 15 pounds pressure; then reduce pressure and cook for 20 minutes at 10 pounds pressure. Reduce pressure to zero before opening the pet cock. Remove from cooker, brush with butter, and brown under broiler flame.

IN FIRELESS COOKER

Heat two stones, the upper to 590° F., the lower to 550° F. About 25 minutes are required for heating the stones.

Place the fowl, stuffed and trussed, on a rack in a fireless cooker container. Do not add any water. Place the pan between the two stones, leaving it uncovered so that the fowl will be browned by the upper stone. Cook for 6 hours.

COMPARISON OF PRODUCTS

The chicken from the fireless cooker was well browned without being placed in the oven. The chicken from the pressure cooker had to be browned under the broiler to make it attractive in appearance.

The flavor of the chicken cooked in the pressure cooker was better than that cooked in the fireless cooker. The high temperature of the pressure cooker seemed to cause it to absorb the flavor of the seasonings from the stuffing.

The time for cooking a fowl by any of the three methods cannot be given definitely because much depends upon the tenderness of the fowl.

Veal Roast

Veal, 3 lbs.
Bayleaf, ½
Onion, small, 1
Catsup, 2 tablespoons
Salt, 1 teaspoon
Drippings, 1 tablespoon
Flour, 2 tablespoons

Water:
In roasting pan for oven, 1 cup
In inset pan of pressure cooker, ¼ cup
In container for fireless cooker, ¼ cup

Wipe and trim the meat for roasting. Rub with salt, dredge with flour. Cut the onion into thin slices.

IN OVEN

Add the bayleaf, catsup, and salt to the water in the bottom of the roaster for basting. Put the roast on a rack in the roasting pan, dot the top with the drippings and sliced onion. Put into a hot oven (450° F.). When well seared, reduce the heat (about 400° F.), and continue cooking, basting quite often. The total time required for roasting is 2½ hours.

IN PRESSURE COOKER

Brown the roast with the onion in the drippings in an inset pan. Add mixed seasonings and the ¼ cup of water called for above. In the bottom of the cooker put 1½ cups of water, the rack, and the pan containing the roast. Cook for 25 minutes at 20 pounds pressure. Run the pressure to zero before opening the pet cock.

IN FIRELESS COOKER

Heat 2 stones to 550° F., which requires about 25 minutes.

Brown the roast with the onion in the drippings in the container of the cooker. Add mixed seasonings and the ¼ cup of water called for above. Heat until water boils. Put the pan containing the roast into the cooker, with a stone above and below. Leave the pan containing the roast uncovered, so that the upper stone will brown the roast. Leave the roast in the cooker for 3 hours and 15 minutes.

COMPARISON OF PRODUCTS

All three roasts were well browned and tender. The roast from the fireless cooker was the least attractive and was somewhat "shreddy" when cooked long enough to be thoroughly done.

Swiss Steak

Round steak, 1¾ lbs.	Onion, chopped, 2 teaspoons
Butterine, 3 tablespoons	Salt, 1 teaspoon
Flour to be pounded into meat	Pepper, ⅛ teaspoon
Flour for gravy, 2 tablespoons	Worcestershire sauce, ½ teaspoon

Water for Gravy:

In oven, 1½ cups
In pressure cooker, 1 cup
In fireless cooker, 1 cup

Wipe steak. Cut into strips about 3 inches wide. Lay on a board well sprinkled with flour, dredge the meat well with flour, and pound the flour into the steak.

IN OVEN

Brown the chopped onion in the butterine (or drippings) in a frying pan. Add meat, and brown well. Lift meat from frying pan, put in 2 tablespoons of flour, brown, add 1½ cups of water and stir until thoroughly blended, making a thin gravy. Add seasonings and meat. Cover tightly. Place in moderate oven (375° F.) and cook for 1½ hours. During the cooking there will be an evaporation of the liquid, so that the finished gravy will be thicker.

IN PRESSURE COOKER

Brown the chopped onion in the butterine (or drippings) in an inset pan. Add meat, and brown well. Lift meat from inset pan, add 2 tablespoons of flour, brown, add 1 cup of water, and stir until thoroughly blended, making a rather thick gravy. Add seasonings and meat. In the bottom of the pressure cooker put two cups of water, a mat or rack, and the inset pan of steak. Cook for 40 minutes at 15 pounds pressure. Reduce pressure to zero, remove meat and serve.

IN FIRELESS COOKER

Heat two stones to 550° F., which requires about 25 minutes.

Brown the chopped onion in the butterine (or drippings) in a container for the fireless cooker. Add meat, and brown well. Lift meat from container, add 2 tablespoons of flour, brown, add 1 cup of water, and stir until thoroughly blended, making a gravy. Add seasonings and meat. Heat thoroughly. Place in the fireless cooker between the two stones, leaving the container uncovered so that the upper stone will brown the meat. Cook for 1¾ hours.

COMPARISON OF PRODUCTS

All of the products were good. The meat cooked in the pressure cooker was more tender than that cooked in the fireless cooker. The meat cooked in the oven was the least tender.

FRUIT CAKE

Butter, 1 lb.	Soda, 1 teaspoon
Light brown sugar, 1 lb.	Milk, ¼ cup
Eggs, 9	Currants, 1 lb.
Flour, 1 lb.	Raisins, 3 lbs.
Cloves, ¾ teaspoon	Almonds, ½ lb.
Nutmeg, ¾ teaspoon	Citron, ½ lb.
Mace, ¾ teaspoon	Candied orange peel, ½ lb.
Cinnamon, 2 teaspoons	Salt, ½ teaspoon

Clean and pick over the raisins and currants. Chop half of the raisins. Blanch the almonds, shred them, and heat them in a moderate oven until a delicate brown. Cut the citron and orange peel in thin, small pieces. Cream the butter, add sugar gradually, and cream together until thoroughly blended. Separate yolks from whites of eggs. Beat whites until stiff. Beat yolks until thick and lemon colored, and add to sugar and butter mixture. When well mixed, fold in the whites. Dredge the mixed fruits with one-half of the flour, mixing it through the fruit until the pieces are well separated. Sift together the remainder of the flour, the soda, spices, and salt. To the cake batter add the milk alternately with the sifted dry ingredients. Add nuts and fruit and mix thoroughly. Line pans with waxed paper. Fill with fruit cake. The weight of the batter in each pan should be 9 oz..

IN OVEN

Bake three cakes in a slow oven (250° F.) for three hours.

IN PRESSURE COOKER

Cover the pans with three thicknesses of waxed paper so that the tops of the cakes will be kept dry. Tie the paper in place so that it cannot slip. In the bottom

of the cooker put 2½ cups of water. On the rack place the pans of fruit cake, one above the other. Cook for one hour and 15 minutes, the first 45 minutes at 10 pounds pressure, and the last 30 minutes at 15 pounds pressure. Reduce the pressure to 15 pounds before opening the pet cock. Remove from cooker, take off paper covers. Put into a slow oven (275° F.) for 12 minutes, in order to dry out the cake.

IN FIRELESS COOKER—STEAMED

Heat one stone to 550° F., which requires about 25 minutes.

In the container of the fireless cooker put 2 cups of water. On a rack place a pan of fruit cake, covered with three thicknesses of waxed paper, so that the top will be kept dry. Heat the water to boiling, cover tightly, and place in the well of the cooker on the hot stone. Cook for 5 hours. Remove from cooker and dry in oven for 30 minutes.

COMPARISON OF PRODUCTS

Of the three methods of cooking fruit cake, the pressure cooker seemed to give the best result. The fruit flavors were well blended. This cake was good in texture, moist, yet thoroughly done.

The cake steamed in the fireless cooker was quite moist when taken from the cooker and had to be dried in the oven for half an hour.

Recipes for the preparation in the pressure cooker of the meals given in Table I, on page 363, follow:

Ham
Escalloped Potatoes Boiled Onions

Ham, 1 slice
Potatoes, 5
Onions, small, 12
Water for cooking onions
  In pressure cooker, ¼ cup
  On stove, 2 cups
Brown sugar, 3 tablespoons
Butter, 1 tablespoon
Milk, ⅞ cup
Salt, 1 teaspoon
Cloves, 7

Trim the ham, rub well with brown sugar, and stick with cloves. Wash and pare the potatoes, cut into thin slices, and put into pan in layers. Add milk, salt, and butter. Clean and peel the onions. Cook whole.

Brown the ham in one of the inset pans on top of the stove. Prepare the escalloped potatoes, using a second inset pan. Put the onions into a third pan with ¼ cup of water. In the bottom of the cooker, place 2 cups of water, a rack, the pan containing the potatoes, over that the ham, and at the top the onions. Cook for 16 minutes at a pressure of 20 pounds. Reduce the pressure to 10 pounds before opening the pet cock.

Swiss Steak with Potatoes, Onions, and Carrots
Steamed Graham Pudding

(A salad and perhaps a soup will make this a complete dinner)

Round steak, 1 lb.
Potatoes, small, 4
Onions, medium-sized, 4
Carrots, small, 4
Flour, 6 tablespoons
Fat, 2 tablespoons

Graham Pudding

Graham flour, ½ cup
Bread flour, ¼ cup
Corn meal, ¼ cup
Molasses, ¼ cup
Sour milk, ⅝ cup
Butter, 1⅔ tablespoons
Soda, ¼ teaspoon
Salt, ½ teaspoon
Raisins, ⅛ cup

To prepare the swiss steak follow directions in the recipe for swiss steak. Pare potatoes and onions, and scrape carrots. Arrange in pan with meat. Do not cut the vegetables into small pieces or they will be cooked too soon. To prepare the steamed pudding, sift together the dry ingredients. Add milk, molasses, and melted butter. Stir in the raisins. Grease inset pan of cooker. Pour in the pudding batter. Cover with three thicknesses of waxed paper tied into place so that the top of the pudding will be kept dry. In the bottom of the pressure cooker put 1½ cups of boiling water, a mat or rack, and the pan containing the pudding. On top of the pan containing the pudding place the pan of meat and vegetables. Cook for 15 minutes at a pressure of 10 pounds, or for 20 minutes at a pressure of 20 pounds. Reduce the pressure to zero before opening the pet cock.

Ham with Apples
Creamed Celery Sweet Potatoes

Ham, 1 slice (1 lb.)
Brown sugar, ½ cup
Cloves, 6
Boiling water, ⅓ cup
Apples, large, 2
Sweet potatoes, large, 2
Boiling water, ¼ cup
Celery, 1 bunch
Boiling water, ½ cup

Wipe and trim the ham. Rub with the brown sugar, and stick with the cloves. Brown in an inset pan over the direct flame for about five minutes. On the slice of ham arrange the apples, pared, cored, and cut into quarters. Add ⅓ cup of boiling water before putting into the cooker. Pare the sweet potatoes, cut into halves, and put into inset pan with ¼ cup of boiling water. Clean the celery, remove coarse strings, and cut into small pieces. Put into an inset pan with ½ cup of boiling water. In the bottom of the cooker put 1 cup of boiling water, a rack or mat, and the pan of sweet potatoes. Above this, place the ham, and at the top, the celery. Cook for 12 minutes at a pressure of 15 pounds. Reduce the pressure to zero before opening the pet cock.

BIBLIOGRAPHY OF TESTS FOR USE IN HIGH SCHOOLS

Editor's Note: This bibliography of tests for secondary schools was begun several years ago by students working under Professor Truman Lee Kelley and Professor Thomas H. Briggs, of Teachers College. It was revised and brought up to date by successive classes under Professor Briggs, and finally was thoroughly checked and put into form for publication by Mr. Charles C. Tillinghast, Principal of the Horace Mann High School for Boys. An earlier edition has had extensive use in mimeographed form.

INTELLIGENCE TESTS*

HAGGERTY INTELLIGENCE EXAMINATION, DELTA 2. By M. E. Haggerty.

Published in 1919. *Purpose:* The Haggerty Examination was intended as a group test of general intelligence for use in a rapid yet accurate survey of a state public school system. It is a valid measure of the general ability of pupils; and the results may be used for any administrative purpose. *Range:* Grades 3–9.

In making the Haggerty Intelligence Examination, Delta 2, four tests from the Army Alpha, one from Beta, and one additional test were combined and modified, comprising tests in arithmetical problems, opposites, practical judgment, general information, picture completion, and sentence reading. The age norms and grade standards are based on data obtained under all sorts of conditions and in all parts of the country. The norms are based on some 20,000 cases. The test is at present available in one form only. This is a "time limit" test, the exact time for the six parts being 17 minutes. One copy of the test is needed for each person to be tested. Instructions for administering, correcting, and scoring are given in the manual of directions.

Publisher: The World Book Company, Yonkers, New York. (Cost: $1.35 for 25 tests, including record sheet. Scoring key, 8 cents. Manual of directions, 30 cents.)

References: Virginia Public Schools Survey, Part II. Yonkers, New York: The World Book Company.

* To determine the reliability of the tests here listed, as well as the grades in which each test is most valuable one should read the following reference: Root, W. T. "Correlations between Binet Tests and Group Tests." *Journal of Educational Psychology,* XIII: 286–292, May, 1922.

MILLER MENTAL ABILITY TEST. By W. S. Miller.

Published in 1921. *Purpose:* To measure general ability, the results to be used for classifying pupils and to predict success. *Range:* Grades 7–12.

The test is made up of three parts, Part 1 being a combination of the disarranged sentence test and the directions test. The items in this test are arranged in order of difficulty. Part 2, or Test II, as it is called, is a controlled association test, which also serves as a vocabulary test, of 200 words, arranged approximately in order of difficulty. Test III is a modification of the mixed relations or analogies test. To eliminate the automatic factor which arises from having the fourth term always missing, and to emphasize the judgment factor, each term is missing one fourth of the time. There is at present one form of the test. This is a "time limit" test, the exact time for the three parts being 19 minutes. Age and grade norms have been established based on 6000 cases, and these norms are given in the manual of directions. Complete instructions for administering, correcting and scoring the test are also given in the manual. Here also are given median scores, percentile distributions, and correlations with school marks. One test is needed for each person to be tested.

Publisher: The World Book Company, Yonkers, New York. (Cost: $1.00 for 25 examination booklets including key, percentile graphs, and age-grade score sheet. Manual of directions, 20 cents. Specimen set, 25 cents.)

References: "The Administrative Use of Intelligence Tests in the High School." *The Twenty-First Yearbook of the National Society for the Study of Education.* pp. 189 ff., Bloomington, Ill.: Public School Publishing Company, 1922.

MYERS MENTAL MEASURE. By Garry C. Myers and Caroline E. Myers.

Published in 1919. *Purpose:* Diagnostic. *Range:* From the kindergarten to the university.

This series of tests is made up of four pictorial tests as follows: 1. Directions; 2. Picture completion; 3. Learning; 4. Common elements. It is published in only one form. Instructions for giving the test are found in the examiner's manual. This test has standard norms, which are given in the manual. The time for giving the entire test is 20 minutes. One copy of the test is needed for each person to be tested.

Publisher: Newson and Company, 73 Fifth Avenue, New York City, and 623 South Wabash Avenue, Chicago, Illinois. (Cost: $5.00 per 100. Examiner's manual, 80 cents.)

References: Myers, C. E. and Myers, G. C. "Group Intelligence Test." *School and Society,* X: 355–360, September 20, 1919.

OTIS GROUP INTELLIGENCE SCALE, ADVANCED EXAMINATION. By Arthur S. Otis.

Published in 1919. *Purpose:* An absolute point scale designed to measure scientifically and rapidly in groups, native mental ability, the results of the test to be used for any administrative need. *Range:* Grades 5–12.

The Otis Group Intelligence Scale is in two forms, each form of the same value as the other but different in content. Each form is made up of ten parts, as follows: 1. Following directions; 2. Opposites; 3. Disarranged sentences; 4. Proverbs; 5. Arithmetic; 6. Geometric figures; 7. Analogies; 8. Similarities; 9. Narrative completion; 10. Memory. This is a "time limit" test, and it is possible to give all ten parts of the test in an hour. One pamphlet is needed for each person to be examined. Complete instructions for administering, correcting, and scoring are given in the manual of directions. Age and grade norms have been established with 25,000 cases, and these are given in the manual of directions. This scale is now in its fourth edition.

Publisher: The World Book Company, Yonkers, New York. (Cost: $1.40 for 25 pamphlets, including record sheet. Examiner's key, 20 cents. Manual of directions, 30 cents.)

References: Otis, Arthur S. "An Absolute Point Scale for the Measurement of Intelligence." *Journal of Educational Psychology*, IX: 239–261, 323–348, May and June, 1918.

OTIS SELF-ADMINISTERING TESTS OF MENTAL ABILITY. HIGHER EXAMINATION. By Arthur S. Otis.

Published in 1922. *Purpose:* To measure general mental ability, the results to be used as administrative needs may determine. *Range:* Grades 9–12.

These tests possess four rather important features: (a) Self-administration, so that the examiner has but to give a few initial instructions; (b) ease of scoring, which reduces the time of scoring a paper to about 45 seconds; (c) flexible time limit; (d) variety of test material, insuring a more comprehensive examination. There are two forms of the tests, alike in difficulty but different in content. Each test consists of 75 questions or problems, including opposites, arithmetic, geometry, analogies, proverbs, etc. These are "time limit" tests, but the time limit may be either 20 minutes or 30 minutes. In the first instance a rapid survey of intelligence may be made; in the second, a more accurate measure is obtained. Norms have been established with about 1000 cases. The tests are very easy to administer

and score. Directions for administering, correcting, and scoring are furnished with the tests. One booklet is needed for each person to be tested.

Publisher: The World Book Company, Yonkers, New York. (Cost: $1.00 for 25 booklets, including one manual of directions, one key, and one record sheet.)

TERMAN'S GROUP TEST OF MENTAL ABILITY. By Lewis M. Terman.

Published in 1920. *Purpose:* By means of a group test to obtain a measure of intelligence for purposes of classification, vocational guidance, and other administrative needs. *Range:* Grades 7–12.

The Terman test is composed of questions and problems which were selected from a much larger number by correlating each separate item with a dependable measure of mental ability. The trial series was composed of thirteen tests with a total of 886 items. Try-outs of these resulted in the elimination of three of the tests, and in the reduction of the items to 370. The ten tests which were left are: 1. Information; 2. Best answer; 3. Word meaning; 4. Logical selection; 5. Arithmetic; 6. Sentence meaning; 7. Analogies; 8. Mixed sentences; 9. Classification; 10 Number series. There are at present two forms available. One test is needed for each person tested; and a minimum of experience is required to administer the test. The test is a "time limit" test, and all ten parts can be given in a thirty-five minute period. Norms based on 30,000 cases have been established. Stanford-Binet mental age equivalents of scores are given. Complete instructions for administering, correcting, and scoring the tests are given in the manual of instructions.

Publisher: The World Book Company, Yonkers, New York. (Cost: $1.55 for 25 tests, including manual, key, and record sheet.)

References: Terman, L. M. "Mental Growth and the I.Q." *Journal of Educational Psychology*, XII: 325 ff., September and October, 1921.

THE MENTIMETERS. By M. R. Trabue.

Published in 1920. *Purpose:* To measure intelligence by means of a group test, and to determine Mentimeter Quotients which shall be fair approximations of Intelligence Quotients of Stanford-Binet Tests. *Range:* For children of kindergarten age up to superior adults.

The Mentimeters test is made up of eight parts: 1. Pictorial absurdities; 2. Maze threading; 3. Dividing geometrical figures; 4. Naming opposites; 5. Reading directions; 6. Sentence completion; 7. Arithmetic reasoning; 8. Range of information. There is only one form, although other mentimeters are described in *Measure Your Mind*. Tentative standard scores for Grades 1–12 are available, as well as age scores from 7 to 16. The test is pub-

lished in pamphlet form, and one pamphlet is needed for each person to be tested. It is a "time limit" test, the time limit for the entire eight parts being 36 minutes. Complete instructions for administering, correcting, and scoring are given in *Measure Your Mind.*

Publisher: Doubleday, Page and Company, Garden City, New York. (Cost: 50 pamphlets, with stencils, record sheet, and quotient tables, $3.25. Specimen set, 25 cents.)

References: Stockbridge, F. P. and Trabue, M. R. *Measure Your Mind: The Mentimeter and How to Use It.* New York: Doubleday, Page and Company, 1920.

Additional References for Intelligence Tests

Almack, J. C. and Almack, J. L. "Gifted Pupils in the High School." *School and Society,* XIV: 227–228, September 24, 1921.

Branson, E. P. "Experiment in Arranging High-School Sections on the Basis of General Ability." *Journal of Educational Research,* III: 53–55, January, 1921.

Breed, F. S. "Shall We Classify Pupils by Intelligence Tests?" *School and Society,* XV: 406–409, April 15, 1922.

Brooks, S. S. "Measuring the Progress of Pupils by Means of Standardized Tests." *Journal of Educational Research,* IV: 161–172, October, 1921.

Colvin, S. S. "Some Recent Results Obtained from the Otis Group Intelligence Scale." *Journal of Educational Research,* III: 1–12, January, 1921.

Franzen, R. and Knight, E. W. "Criteria to Employ in the Choice of Tests." *Journal of Educational Psychology,* XII: 408–412, October, 1921.

Glass, J. M. "Classification of Pupils in Ability Groups." *The School Review,* XXVIII: 495–508, September, 1920.

Madsen, I. N. "Group Intelligence Tests as a Means of Prognosis in High School." *Journal of Educational Research,* III: 43–52, January, 1921.

Madsen, I. N. "Relationship between General Intelligence and Success in Certain High-School Subjects." *Journal of Educational Research,* III: 396–398, May, 1921.

Pintner, Rudolph. "A Non-Language Group Intelligence Test." *Journal of Applied Psychology,* III: 199–214, September, 1919.

Proctor, W. M. "Psychological Tests as a Means of Measuring the Probable School Success of High-School Pupils." *Journal of Educational Research,* I: 258–270, April, 1920.

Smith, W. H. "Otis Group Intelligence Tests and High-School Grades." *School and Society,* XII: 71–72, July 17, 1920.

Thorndike, E. L. "Tests of Intelligence." *School and Society,* IX: 189–195, February 15, 1919.

Willing, M. H. "The Encouragement of Individual Instruction by Means of Standard Tests." *Journal of Educational Research,* I: 193–198, March, 1920.

EDUCATIONAL TESTS

ENGLISH

EXERCISES IN JUDGING POETRY. By Allan Abbott and M. R. Trabue.

Published in 1921. *Purpose:* To serve as an objective measure for the measurement of the appreciation of poetry, and the discrimination between different degrees of quality in poetry. *Range:* Grades 7–12, and for all adults.

This test is published in two parallel series, X and Y, each series containing thirteen graduated sets of selections from Mother Goose to Milton or Browning. Each set consists of four versions of the same selection, from which the student is asked to select a "Best" and a "Worst" version. These exercises increase in reliability with the increased age of the pupils tested, and are of negligible value in the first two years of the high school. In the third and fourth years they have a decided value as testing instruments. Norms have been established, based on some 3500 cases. Instructions for administering, correcting, and scoring, as well as the norms, are given in the TEACHERS COLLEGE RECORD, for March, 1921. The giving of the test should occupy about one class period of forty-five minutes. One copy of the test is needed for each pupil to be tested.

Publisher: The Bureau of Publications, Teachers College, New York. (Cost: 8 cents per copy or $7.50 per hundred. TEACHERS COLLEGE RECORD, containing directions, norms, and methods of scoring, 40 cents.)

References: Abbott, A. and Trabue, M. R. "A Measure of Ability to Judge Poetry." TEACHERS COLLEGE RECORD, XXII: 101–126, March, 1921.

BRIGGS ENGLISH FORM TESTS. By Thomas H. Briggs.

Published in 1921. *Purpose:* To serve as a measure of a pupil's knowledge of the common elements of form in English composition. *Range:* Grades 7–9.

There are two parallel forms of this test, Alpha and Beta, alike in plan and arrangement, but containing different sentences. Each test consists of twenty sentences printed without some necessary capital letters, commas, apostrophes, and end punctuation. In some cases two or more sentences are run together. The pupil is required to insert the proper corrections to form sentences which are correct throughout. These are very reliable tests, are easy to administer, and can be quickly scored by means of a stencil. One copy of either Alpha or Beta is needed for each pupil to be tested. This is not a "time limit" test. Instructions for administering, correcting, and scoring are given in the reprint from the TEACHERS COLLEGE RECORD, listed below.

Publisher: Bureau of Publications, Teachers College, New York. (Cost: 90 cents per 100. Reprint from TEACHERS COLLEGE RECORD, January, 1921, 15 cents.)

References: Briggs, Thomas H. "An English Form Test," TEACHERS COLLEGE RECORD, XXII: 1–11, January, 1921.

SIXTEEN SPELLING SCALES. By Thomas H. Briggs and Truman L. Kelley.

Published in 1920. *Purpose:* For instruction or testing. *Range:* Grades 7–12.

These scales comprise the Sixteen Spelling Scales Standardized in Sentences for Secondary Schools devised under the direction of Professors Briggs and Kelley. There are 12 easy lists of 20 words each, incorporated in sentences, and four harder lists of 20 words each, similarly arranged. Standards are available for Grades 7 to 12.

Publisher: Bureau of Publications, Teachers College, New York. (Cost: 40 cents.)

References: TEACHERS COLLEGE RECORD, XXI: 337–391, September, 1920.

HUDELSON ENGLISH COMPOSITION SCALE. By Earl Hudelson.

Published in 1921. *Purpose:* To serve as an objective measure for the measurement of English composition. *Range:* For any written composition—most effective in Grades 7–12.

The Hudelson scale is composed of compositions written by first-year high-school pupils of Virginia during the State Educational Survey, in May, 1919. Approximately 1000 Virginia compositions were scored on the Nassau County Scale by one experienced scorer. One hundred of these scored compositions, ranging from the poorest to the best, were scored by 96 composition teachers. The values accompanying the samples in the Hudelson scale represent the median judgments of the 96 scorers. In the scale the first 11 specimens, values 2.0 to 7.0, are Virginia compositions. Other samples are from Thorndike's "150 Specimens of English Composition," arranged for use in psychological and educational experiments, and from the Thorndike Extension to the Hillegas Scale. One copy of the test is needed for each corrector. Instructions as to the method of correcting and scoring are given in the booklet, as well as a comprehensive table of norms, and compositions for practice. The directions given are very helpful, and the even grading of the samples makes the scale one which can be handled by teachers untrained in the use of such a device.

Publisher: The World Book Company, Yonkers, New York. (Cost: 60 cents for the booklet.)

References: The Virginia Survey. Yonkers: The World Book Company.

ENGLISH GRAMMAR TESTS. By Daniel Starch.

Published in 1920. *Purpose:* Diagnostic, to test information and ability in cases, parts of speech, and forms of verbs. *Range:* Grades 7–12.

This test is in three parts, each part printed on a separate leaflet. Part 1 consists of a passage of connected discourse in which the pupil is to put above each word the abbreviation for the part of speech. There is a time limit of three minutes for this part. Part 2 is also a passage of connected discourse in which the pupil is to tell the case of every noun and pronoun. There is a time limit of three minutes for this part. Part 3 is made up of 45 verb forms, above each one of which the pupil is to put the abbreviation of the tense and mode. This part also has a time limit of three minutes. Instructions for administering and scoring the tests may be had from the author. One copy of each of the three tests is needed for each pupil to be examined. Any one test may be given separately, and there are norms for each test for each of the six years (Grades 7–12). These norms are printed on the sheet of instructions.

Publisher: The University of Wisconsin, Madison, Wisconsin.

GRAMMATICAL SCALE A: ENGLISH. By Daniel Starch.

Published in 1920. *Purpose:* Diagnostic. *Range:* Grades 5–12.

This test is explained in the directions to the pupil as follows: "Each of of the following sentences has in parentheses two ways in which it may be stated. Cross out the one which you think is incorrect or bad. If you think both are incorrect cross both out. If you think both are correct underline both." There are eleven steps in the test, each step containing at least three sentences, with the exception of the last two steps, one of which contains one and the other two. Many of the sentences are not incorrect in either of the two forms given in parentheses. Instructions for administering and scoring as well as norms for each of the eight grades, are obtainable from the author. There is a key for scoring.

Publisher: The University of Wisconsin, Madison, Wisconsin.

THORNDIKE-MCCALL READING SCALE. By E. L. Thorndike and W. A. McCall.

Published in 1920. *Purpose:* To measure the understanding of sentences. *Range:* Grades 2–12.

This scale consists of a carefully graded set of paragraphs arranged in order of difficulty of comprehension. Each paragraph is followed by a series of questions which the pupil is to answer after reading the paragraph. The scale has ten equivalent and interchangeable forms, and may be used both as a teaching and testing instrument. The scale is standardized both by

age and by grade. Complete instructions for administering, correcting, and scoring are given in the pamphlet of directions. This pamphlet contains also the standardized norms, and a key for correcting the tests. A copy of the form selected is needed for each pupil to be tested.

Publisher: Bureau of Publications, Teachers College, New York. (Cost: $2.00 per 100, including manual of directions and record sheets.)

References: McCall, W. A. "Proposed Uniform Method of Scale Construction." TEACHERS COLLEGE RECORD, XXII: 31–51, January, 1921.

THORNDIKE VISUAL VOCABULARY SCALES. By E. L. Thorndike. Published 1916, 1920. *Purpose:* To measure word knowledge. *Range:* Grades 3–10.

Each scale in this series consists of a graded series of words which the pupil is to classify according to certain specified groups, such as an animal, a flower, a name, etc. The scales are intended to measure the ability of a group, or a class, or an individual. There are four scales of approximately equal difficulty, A 2x and A 2y, Bx and By. The words in the two series, A and B, are of different meaning, while the x and y scales may be used as alternates. Scales A 2x and Bx are usually given at one time. Instructions for giving this test are included in the manual of directions. There is a stencil for correcting the tests. Grade standards are given in the manual.

Publisher: Bureau of Publications, Teachers College, New York. (Cost: 50 cents per 100. Manual of directions, 40 cents. Answer stencil, 5 cents. Record sheet, three cents.)

NASSAU COUNTY SUPPLEMENT TO THE HILLEGAS SCALE FOR MEASURING THE QUALITY OF ENGLISH COMPOSITION. By M. R. Trabue.

Published in 1916. *Purpose:* To serve as a scale for the objective measurement of English Composition. *Range:* Grades 4–12.

This scale supplements the Hillegas scale by presenting ten compositions obtained in the Nassau County Survey. Unlike the Hillegas scale, none of the compositions is artificial and all are of the same general narrative type. The intervals between the values in this test are somewhat less unequal than those found in the original Hillegas scale. Instructions for the use of this scale are contained in the booklet referred to in the reference below. Grade standards are printed on each copy of the scale. Only one copy of the scale is needed for a class, the administrator comparing the compositions with the scale. There is one form of the test, with ten values.

Publisher: Bureau of Publications, Teachers College, New York. (Cost: 8 cents a copy.)

Reference: Trabue, M. R. "Supplementing the Hillegas Scale," *Teachers*

College Bulletin, 1918. (May be bought as a reprint for 35 cents a copy from the Bureau of Publications, Teachers College.)

ADDITIONAL REFERENCES FOR ENGLISH TESTS

Ashbaugh, E. J. "Measurement of Language: What is Measured and Its Significance." *Journal of Educational Research*, IV: 32–39, June, 1921.

Dolch, E. W. Jr. "Measurement of High-School English." *Journal of Educational Research*, IV: 279–286, November, 1921.

Van Wagenen, M. J. "Accuracy with which English Themes May Be Graded with the Use of English Composition Scales." *School and Society*, XI: 441–450, April 10, 1920.

History

There are at the present time no well standardized scales in history for the high-school grades. There are a few scales designed for the eighth grade or lower which may be used with doubtful reliability for high-school pupils. These tests are here listed.

BARR, A. S. Preliminary Diagnostic Tests in American History. Published by Bureau of Educational Research, University of Illinois, Urbana, Illinois.

HARLAN, C. L. Test of Information in United States History. Published by Public School Publishing Company, Bloomington, Illinois.

STARCH, DANIEL. American History Test. Published by University of Wisconsin, Madison, Wisconsin.

VANNEST, C. G. Diagnostic Test in Modern European History. Published by the Coöperative Research Bureau, Bloomington, Indiana.

VAN WAGENEN, M. J. American History Scales. Published by the Bureau of Publications, Teachers College, New York.

REFERENCES FOR HISTORY

Bell, J. C. and McCollum, D. F. "A Study of Attainments of Pupils in United States History." *Journal of Educational Psychology*, VIII: 257 ff., May, 1917.

Rugg, E. U. "Character and Value of Standardized Tests in History." *The school Review*, XXVII: 757–771, December, 1919.

Sackett, L. W. "A Scale in Ancient History." *Journal of Educational Psychology*, VIII: 284 ff., May, 1917.

Sackett, L. W. "A Scale in United States History." *Journal of Educational Psychology*, X: 345 ff., September, 1919.

LATIN

TESTS IN LATIN. By H. A. Brown.

Published in 1916, 1917. *Purpose:* To measure the efficiency of the work in Latin in the secondary schools of an entire state. *Range:* Grades 9–12.

These tests were devised to measure the ability of the pupil in reading connected prose, in translating short sentences, and in determining constructions and reasons therefor. There are four tests: Latin sentence test; connected Latin test; Latin grammar test; and Latin vocabulary test. These tests are described exhaustively in the publication listed below. Although these tests were not designed for general use, they are exceedingly valuable because of the thoroughness and care with which grades and norms have been established. They have been given to nearly 1200 pupils in all four years of high school.

Publisher: State Normal School, Oshkosh, Wisconsin.

References: Brown, H. A. *A Study of Ability in Latin in Secondary Schools.* Oshkosh Wisconsin State Normal School.

HENMON LATIN TESTS. By V. A. C. Henmon.

Published in 1921. *Purpose:* To test the scope and accuracy of vocabulary, and knowledge of grammar as revealed in sentence construction. *Range:* For pupils who have had one, two, three or four years of Latin.

There are five tests in this series: Tests 1, 2, 3, 4, and X, each in two parts, a vocabulary examination and a sentence examination. To secure the vocabularies used, a tabulation was made of all the words used in thirteen recent or widely used texts in beginning Latin, in Caesar, Cicero, and Vergil. Tests 1–4 are of equal difficulty. The vocabulary examinations of these tests consist of fifty words each, each word having its scale value, word number 1 being rated at .4 and word number 50 at 4.7. In Test X the words have approximately the same scale values. In each of the four tests the sentence construction examination contains ten sentences. Test X is intended for research purposes and for school surveys. One copy of the test is needed for each person to be tested, and both parts of the test can be given in 20 minutes. Norms have been established, based on 80,000 cases. Complete instructions for administering, correcting, and scoring are furnished with the tests.

Publisher: The World Book Company, Yonkers, New York. (Cost: 50 cents for 25 copies, including directions for administering and scoring and one record sheet.)

References: Henmon, V. A. C. "The Measurement of Ability in Latin."

Journal of Educational Psychology, VIII: 515–538, 589–599, November and December, 1917.

Henmon, V. A. C. "The Measurement of Ability in Latin, Vocabulary and Sentence Tests, Part III." *Journal of Educational Psychology*, XI: 121–136, March, 1920.

STARCH-WATTERS LATIN TEST. By Daniel Starch and J. M. Watters.

Published in 1919. *Purpose:* To serve as a measure of ability in Latin vocabulary and translation. *Range:* For pupils who have had one, two, three or four years of Latin.

This test has no grammatical questions, but is limited to vocabulary and translation. It is in five parts; 1. Vocabulary; 2. First-year Latin sentences; 3. Caesar; 4. Cicero; 5. Vergil. The words in the vocabulary test were selected by choosing every twentieth word from Lodge's *The Vocabulary of High School Latin*. For the first-year sentences, four sentences were selected at equal distances apart from each of five widely used first-year texts. For the second year the seven sentences were chosen from Caesar at intervals of 22 chapters. For the third year the seven sentences were chosen at uniform intervals from Cicero, one from each of the four orations against Catiline and the oration in behalf of Archias, and two from the oration for the Manilian Law. For the last year the ten sentences were chosen from the first six books of Vergil at intervals of 500 lines. The instructions for administering, correcting, and scoring the test are very simple, and are printed on the test itself. Here also are printed the medians established in slightly over 500 cases. One copy of each test is needed for each pupil to be tested.

Publisher: University of Wisconsin, Madison, Wisconsin.

References: Starch, Daniel, "A Test in Latin." *Journal of Educational Psychology*, X: 489 ff., December, 1919.

MATHEMATICS

HOTZ ALGEBRA SCALES. By Henry G. Hotz.

Published in 1918. *Purpose:* There are three distinct purposes: to indicate attainment, to measure progress, and to diagnose difficulties. *Range:* For pupils in the first year of algebra.

There are five different scales in this test: 1. Addition and subtraction; 2. Multiplication and division; 3. Equation and formula; 4. Graphs; 5. Problems. There are at present two series of each scale except the Graph Scale, where there is only the one. This is not a time test, and any one of the five scales may be given independently of the others. Series B is the long series, and consists of from 18 to 25 exercises in each scale; while series A is

composed of exercises taken from Series B, and contains from 8 to 12 exercises in each scale. Series A being the short series is especially useful when time is limited; Series B because of the greater number and variety of its problems is more valuable from the standpoint of diagnosis. If only one scale can be used the Equation and Formula Scale is recommended. At least two scales should be used when possible, and the Problem Scale comes next in importance. Complete instructions for administering, correcting, and scoring are given in the manual of directions. Here are also given the results of the standardization of the scales.

Publisher: Bureau of Publications, Teachers College, New York. (Cost: 70 cents per 100, except for the Graph Scale, which is $1.25 per 100. Manual of directions, 75 cents.)

References: Hobbs, J. B. "Results from Giving the Hotz First Year Algebra Scale Tests to a 6–8 Months' Group." *School and Society*, XXII: 353–354, October 16, 1920.

Hotz, H. G. *Teacher's Manual for First Year Algebra Scales*, New York: Bureau of Publications, Teachers College.

MINNICK'S GEOMETRY TEST. By J. H. Minnick.

Published in 1919. *Purpose:* To measure a pupil's ability to demonstrate a geometrical theorem. *Range:* For pupils studying or who have studied plane geometry.

This is a series of tests based on the assumption that the demonstration of a geometrical theorem involves the following abilities: 1. The ability to draw the figure; 2. The ability to state the hypothesis and conclusion; 3. The ability to recall facts concerning the figure; 4. The ability to select and organize facts so as to produce the proof. Norms have been established in this test so that it is a reliable instrument for measuring. Instructions for administering the test will be sent by the author. Standard grades are given in the references appended below. The time required for giving this test is about an hour.

Publisher: Minnick, J. H. University of Pennsylvania, Philadelphia, Pennsylvania.

References: Minnick, J. H. "The Scoring of Geometry Test W." *Educational Administration and Supervision*, VI: 509–511, December, 1920.

Minnick, J. H. "A Scale for Measuring Pupils' Ability to Demonstrate Geometry Problems." *The School Review*, XXVII: 101-109, February, 1919.

ROGERS TEST OF MATHEMATICAL ABILITY. By Agnes L. Rogers.

Published in 1919. *Purpose:* To provide a means of diagnosing the mathematical ability of pupils in the ninth grade. *Range:* Ninth grade.

This series is made up of six tests: 1. Geometry; 2. Algebraic computation; 3. Interpolation; 4. Superposition; 5. Language scale; 6. Mixed relations test. The tests are designed to measure native ability rather than the effects of training; and they are of such a nature that a teacher may be enabled to form an accurate estimate of a pupil's mathematical ability as well as likelihood of success in future mathematical work. There are two parts in each of the first five tests, but only one in the mixed relations test. This is an excellent test for discovering particular lines of mathematical weakness. Instructions for administering, correcting, and scoring the test are given in the manual of directions. Norms are also given in this manual. One booklet of the tests is needed for each pupil to be tested. This is a "time limit" test, and the entire six tests can be given in 85 minutes.

Publisher: Bureau of Publications, Teachers College, New York. (Cost: $9.00 per 100. Manual of directions, 65 cents.)

References: Rogers, Agnes L. "Tests of Mathematical Ability—Their Scope and Significance." *The Mathematics Teacher*, XI: 145–163. June, 1919.

Mensenkamp, L. E. "Tests of Mathematical Ability and their Prognostic Value—Discussion of the Rogers Test." *School Science and Mathematics*, XXI: 150–162, February, 1921.

RUGG-CLARK STANDARDIZED TESTS IN FIRST-YEAR ALGEBRA. By H. O. Rugg and J. R. Clark.

Published in 1918. *Purpose:* Diagnosis of difficulties in learning in algebra. *Range:* Grades 9–12.

The Rugg–Clark Tests consist of a series of 16 tests arranged in two pamphlets. Both pamphlets are necessary for each pupil tested. There is only one form. Each test is designed to measure skill in some one of the formal operations of algebra. All the tests are "rate" or "time" tests, and the examples in each are arranged in cycles. Norms based on cases in more than fifty school systems have been established. Complete instructions for administering and scoring are furnished with the tests.

Publisher: University of Chicago Bookstore, University of Chicago, Chicago, Illinois. (Cost: 8 cents per pupil. This includes directions and tabulation sheet.)

References: Rugg, H. O. and Clark, J. R. "A Coöperative Investigation in the Testing and Experimental Teaching of First Year Algebra." *The School Review*, XXV: 346–349, May, 1917.

Rugg, H. O. and Clark, J. R. "Standardized Tests and the Improvement of Teaching in First Year Algebra." *The School Review*, XXV: 113–132, February, 1917 (Part I); XXV: 196–213, March, 1917 (Part II).

Rugg, H. O. and Clark, J. R. "The Improvement of Ability in the Use of the Formal Operations of Algebra by Means of Formal Practice Exercises." *The School Review*, XXV: 546-554, October, 1917.

A TEST IN PLANE GEOMETRY. By Raleigh S. Schorling.

Published in 1921. *Purpose:* Diagnostic, to reveal both abilities and difficulties in geometry. *Range:* For pupils who have had a major portion of plane geometry.

This test is made up of seven parts: 1. Completion of sentences having to do with geometric facts; 2. True-false test; 3. True-false of converse of theorem; 4. Matching; 5. Drawing valid conclusions; 6. Computation; 7. Constructions. The test is in one form, and one copy of the booklet is needed for each pupil tested. The author is publishing a revised test at the present time on the same plan as the original one. This test has as yet not been standardized by use in a great number of cases, but it is a very good type of test. Emphasis is laid on reasoning rather than on mere memory. Instructions for giving the test may be had from the author.

Publisher: Raleigh S. Schorling. The Lincoln School of Teachers College, New York.

GEOMETRY TEST. By Daniel Starch and H. S. Hemenway.

Published in 1919. *Purpose:* Diagnostic. *Range:* For first year algebra.

This is a test of one form in two parts—definitions and theorems. The definitions, 15 in number, call for the exercise of memory merely. The theorems test is made up of 12 theorems, some of them construction problems. The theorem proofs and statements are in the form of sentences with blank spaces to be filled by the pupil. This test is not greatly different from the ordinary type of examination. There is no limit of time for doing the work, although from 60 to 75 minutes is suggested. There have been tentative norms established, based on a small number of pupils in five high schools. Directions for giving the tests and for scoring are printed on each copy of the test. The norms are also printed on each test.

Publisher: The University of Wisconsin, Madison Wisconsin.

THURSTONE VOCATIONAL GUIDANCE TESTS: ALGEBRA. By L. L. Thurstone.

Published in 1919 and 1922. *Purpose:* To diagnose a pupil's ability and to predict his chances of success in the field of engineering. *Range:* For the twelfth grade and for college freshmen.

This test consists of 12 short problems. Some of these call for "true-false" answers. There is one graph problem, five stated problems, while the other problems are of the usual type found in elementary algebra. The time limit for the twelve problems is 30 minutes. Complete instructions for administering, correcting, and scoring, as well as norms from some 8000 cases, are given in the manual of directions.

Publisher: The World Book Company, Yonkers, New York. (Cost: $1.00 for a package of 25 tests, including a key and a record sheet. Manual of directions, 20 cents.)

THURSTONE VOCATIONAL GUIDANCE TESTS: TECHNICAL INFORMATION TEST. By L. L. Thurstone.

Published in 1922. *Purpose:* To diagnose a pupil's ability and to predict his chances of success in the field of engineering. *Range:* for the twelfth grade and for college freshmen.

In this examination an effort is made to ascertain how much general information of a technical character a pupil has acquired during his high-school course on his own initiative and by his own interest. For this reason the items in the test, 100 in number, are mostly such as would represent activities outside of the school. They cover such information as a boy would acquire from reading popular technical journals, making toys, working with radio, and the like. The form of the examination is the underlining method of sentence completion. Each one of the 100 statements has a blank to be filled by underlining one of four words appended to the statement. Complete instructions for administering, correcting, and scoring the test are given in the manual of directions. Here also are given norms from some 8000 cases.

Publisher: The World Book Company, Yonkers, New York. (Cost: $1.00 for a package of 25 tests, including key and record sheet. Manual of directions, 20 cents.)

THURSTONE VOCATIONAL GUIDANCE TESTS: GEOMETRY. By L. L. Thurstone.

Published in 1919 and 1922. *Purpose:* To diagnose a pupil's ability and to predict his chances of success in the field of engineering. *Range:* For the twelfth grade and for college freshmen.

This test consists of 9 construction problems in plane geometry. Instructions for each construction are given clearly and definitely along with the problem. All construction lines are to be left. The time limit for the 9 problems is 30 minutes. Complete instructions for administering, correcting and scoring, as well as the standardized norms from some 8000 cases, are given in the manual of directions.

Publisher: The World Book Company, Yonkers, New York. (Cost: $1.00 for a package of 25 tests, including a record sheet. There is no key for this test. Manual of directions, 20 cents.)

ADDITIONAL REFERENCES FOR MATHEMATICS TESTS

Courtis, S. A. "Measurement of High-School Mathematics." *School Science and Mathematics*, XVIII: 507–526, June, 1918.

Cawl, F. R. "Practical Uses of an Algebra Standard Scale." *School and Society*, X: 88–90, July 19, 1919.

Douglass, H. R. "A Series of Standardized Diagnostic Tests for the Fundamentals of Elementary Algebra." *Journal of Educational Research*, IV: 396–403, December, 1921.

Kelley, T. L. "Values in High-School Algebra and Their Measurement." TEACHERS COLLEGE RECORD, XXI: 246–290, May, 1920.

MODERN LANGUAGES

SILENT READING TEST A: FRENCH. By C. H. Handschin.

Published in 1920. *Purpose:* To provide teachers with a convenient and accurate method of measuring the ability of pupils in elementary French. *Range:* For first- or second-year French pupils.

This test is made up of twelve exercises in French. Each exercise is a statement, followed by a question. The pupil's answer is also to be in French. There is a time limit of 5 minutes for the entire twelve exercises. The sentences increase in difficulty from the first to the twelfth. One test is needed for each pupil to be tested. Grades have been standardized, so that norms are available. Complete instructions are given on the record sheet. This is a very easy test to administer.

Publisher: The World Book Company, Yonkers, New York. (Cost: $1.00 for a package containing the material for 50 pupils, including four record sheets which give instructions for administering, as well as a key for the answers.)

COMPREHENSION AND GRAMMAR TEST A: FRENCH. By C. H. Handschin.

Published in 1920. *Purpose:* To furnish a test which shall be diagnostic of difficulties in French Grammar. *Range:* For first-year classes in French only.

The test contains six easy French sentences, which the pupil is to study for five minutes with a view to reproducing them in French. After the five minutes of study, the pupil turns the paper over and writes the sentences as he remembers them. There are also blank spaces in the sentences, which are to be filled in with adjective, personal pronoun, participle, and possessive adjective respectively. After the sentences have been first written they are to be rewritten on the same sheet in the third person plural, past indefinite tense, changing the entire sentence into the plural. The time for writing both versions is ten minutes. The entire test takes fifteen minutes. One test is needed for each pupil to be tested. Complete instructions for administering, scoring and the like are given on the instruction sheet. This test is in the process of being standardized by the author.

Publisher: The World Book Company, Yonkers, New York. (Cost: $1.00 for a package containing the material for 50 pupils, including four record sheets with instructions, as well as a key for scoring.)

SILENT READING TEST B: SPANISH. By C. H. Handschin.

Published in 1920. *Purpose:* To provide a rapid and yet accurate method of measuring the ability of pupils in elementary Spanish to discover the meaning of a selection of connected discourse. *Range:* For first- or second-year Spanish pupils.

This test consists of a short passage of connected Spanish. The pupil is given time to read this carefully, and is then asked to write the answers to ten questions which appear on the test. These questions are in English, and the answers may be in English or in Spanish. This is a "time limit" test, and the entire test can be given in less than 10 minutes. Grades have been standardized, so that norms are available. Instructions are given on the test itself, as well as on the record sheet.

Publisher: The World Book Company, Yonkers, New York. (Cost: $1.00 for a package containing the material for 50 pupils, including four record sheets with instructions for administering, as well as a key for the answers.)

SILENT READING TEST B: FRENCH. By C. H. Handschin.

Published in 1920. *Purpose:* To provide a rapid and yet accurate method of measuring the ability of pupils in elementary French to discover the meaning of a selection of connected discourse. *Range:* For first- or second-year French pupils.

This test consists of two paragraphs of connected French, with a total of 192 words. The pupil is given time to read this selection carefully, and then is asked to write the answers, in English or French as he may prefer, to ten questions which appear on the test. These questions are in English. This is a "time limit" test, and the entire test can be given in less than 10 minutes. One test is needed for each pupil to be tested. Grades have been standardized, so that norms are available. Instructions are given on the test itself and on the record sheet.

Publisher: The World Book Company, Yonkers, New York. (Cost: $1.00 for a package containing the material for 50 pupils, including four record sheets which give instructions for administering, as well as a key for the answers.)

SILENT READING TEST A: SPANISH. By C. H. Handschin.

Published in 1920. *Purpose:* To provide teachers with a convenient and accurate method of measuring the ability of pupils

in elementary Spanish. *Range:* For first- or second-year Spanish pupils.

This test is made up of fourteen exercises in Spanish, each exercise consisting of a statement, followed by a question. The pupil's answer is to be in Spanish. There is a time limit of 5 minutes for the entire fourteen exercises. The sentences increase in difficulty from the first to the fourteenth. One test is needed for each pupil to be tested. Grades have been standardized, so that norms are available. Complete instructions for administering, correcting, and scoring are given on the record sheet.

Publisher: The World Book Company, Yonkers, New York. (Cost: $1.00 for a package containing the material for 50 pupils, including four record sheets which give instructions, as well as a key for the answers.)

HENMON FRENCH TESTS. By V. A. C. Henmon.

Published in 1921. *Purpose:* To measure scope and accuracy of vocabulary and ability to reproduce sentences involving vocabulary and grammatical principles studied. *Range:* For pupils who have had at least a year of French.

Each of the Henmon French Tests consists of two parts—a vocabulary test and a sentence examination. There are four tests of equal difficulty but different in content. In making the vocabulary test a tabulation was made of all words used in twelve recent or widely used first-year text books in French. There were 448 such words. The sentence tests were prepared so as to include a variety of grammatical construction. Each of the four vocabulary tests contains sixty words; each of the four sentence tests contains twelve sentences. Standard scores for three years of high-school French are available. One copy of the test is needed for each person to be tested, and 20 minutes is needed to give the two parts of each test. Complete instructions for administering, correcting and scoring, as well as grade standards, are given in directions.

Publisher: The World Book Company, Yonkers, New York. (Cost: 50 cents for 25 tests, including directions for scoring, standard scores, and one record sheet.)

References: Henmon, V. A. C. "Standardized Vocabulary and Sentence Tests in French." *Journal of Educational Research*, III: 81 ff., February, 1921.

SCIENCE

PHYSICS TEST. By Daniel Starch.

Published in 1919. *Purpose:* Diagnostic. *Range:* For pupils who have had at least a year's work in elementary physics or its equivalent.

This test, which calls for memory more than for reasoning power, is of the informational type. The test is made up of five parts: 1. Mechanics; 2. Heat; 3. Sound; 4. Light; 5. Magnetism and electricity. Part 1 has 28 sentences in which there are blanks to be filled out by the pupil; part 2 has 8 such sentences; part 3, 9; part 4, 9; and part 5 has 21. There is no time limit to this test; and the giving of the entire test to an average class would probably occupy from 1½ to 2 hours. The instructions for administering and scoring—which are very simple—are printed on the test sheet itself. There are also given standard scores for the five parts of the test, as well as a total standard score.

Publisher: The University of Wisconsin, Madison, Wisconsin.

THURSTONE VOCATIONAL GUIDANCE TESTS: PHYSICS. By L. L. Thurstone.

Published in 1919 and 1922. *Purpose:* To diagnose a pupil's ability and to predict his chances of success in the field of engineering. *Range:* For the twelfth grade and college freshmen.

The Physics Test differs from the ordinary examination in the subject only in that an attempt has been made to appeal to the engineering interests of the pupil. The test is made on the principle that it is not sufficient that the student be able merely to repeat the principles of physics; he must be able to apply these principles on his own initiative to problems of engineering interest even when the problems are so stated that the principle involved is not immediately apparent. There are 25 problems in the test, with a time limit of thirty minutes for the entire test. Complete instructions for administering, scoring and the like are given in the manual of directions. Here also are given the standardized norms from some 8000 cases.

Publisher: The World Book Company, Yonkers, New York. (Cost: $1.00 per package of 25 tests, including key and record sheet. Manual of directions, 20 cents.)

ADDITIONAL REFERENCES FOR SCIENCE TESTS

Bell, J. C. "Study of the Attainments of High-School Pupils in First-Year Chemistry." *School Science and Mathematics*, XVIII: 425–432, May, 1918.

Briggs, T. H. "Results from the Bell Chemistry Test." *Journal of Educational Psychology*, XI: 224–228, April, 1920.

Camp, H. L. "Scales for Measuring the Results of Physics Teaching." *Journal of Educational Research*, V: 400–405, May, 1922.

Chapman, J. C. "Measuring of Physics Information." *The School Review*, XXVII: 748–756, December, 1919.

Downing, E. R. "What Standard Tests in Science Should Do." *School Science and Mathematics*, XIX: 651–654, October, 1919.

Downing, E. R. "Range of Information Test in Science." *School Science and Mathematics*, XX: 77–83, January, 1920. (This is the revised test, copies of which may be obtained from the author at the University of Chicago for 40 cents per 100.)

Gerry, H. L. "Further Data on the Bell Chemistry Test." *Journal of Educational Psychology*, XI: 398–401, October, 1920.

Glenn, E. R. "Conventional Examinations in Chemistry and Physics versus the New Type of Test." *School Science and Mathematics*, XXI: 666–670, 746–756. October and November, 1921. (Glenn is now working on tests in chemistry and physics, and hopes to have them standardized in the near future. He may be addressed at the Lincoln School, Teachers College, New York.)

Grier, N. M. "Range of Information Test in Biology: I Physiology; II Zoology; III Botany." *Journal of Educational Psychology*, IX: 210–216; IX: 388–392; X: 509–516. April, 1918; September, 1918; December, 1919.

Rivett, J. B. "Results with Standard Chemistry Tests." *School Science and Mathematics*, XXI: 720–722, November, 1921.

Ruch, G. M. "A Range of Information Test in General Science." *General Science Quarterly*, IV: 257–262, November, 1919.

Wager, R. E. "Standardized Tests in Science." *School Science and Mathematics*, XIX: 849-857, December, 1919; XX: 66–70, January, 1920.

Webb, H. A. "A Preliminary Test in Chemistry." *Journal of Educational Psychology*, X: 36–43, January, 1919.

Webb, H. A. "Testing Laboratory Resourcefulness." *School Science and Mathematics*, XXII: 259–266, March, 1922.

ALUMNI ACTIVITIES

THE LIBRARY IS BEGUN

The new library for Teachers College is assured. The Trustees of the College have started building operations.

Up to June 30, 1922, the Alumni Library Fund totaled $96,281.00, and gifts still continue to come. The Alumni Drive closed officially on July 1, but the office of the Field Secretary will be glad to receive any contributions which may come in and transfer them to the Treasurer of the College for the Library Fund.

It is estimated that the new library will be ready for occupancy in the fall of 1923.

SCRANTON TEACHERS COLLEGE CLUB

On June 12, the alumni and former students of Teachers College residing in and near Scranton, Pennsylvania, met to organize the Scranton Teachers College Club. The constitution which had been drawn up by a committee was adopted. The following officers were elected: President, Miss Anna W. Clark; vice-presidents, Miss Harriet Ziegler and Miss Effie Brennan; recording secretary, Miss Marie L. Diem; corresponding secretary, Miss Stella Kinbach; treasurer, Miss Ruth Scheuer.

NEW TREASURER FOR ALUMNI ASSOCIATION

Mr. R. G. Reynolds of the Bureau of Educational Service of Teachers College, New York City, has been appointed acting treasurer of the Alumni Association to fill the vacancy in that office caused by the resignation of Dr. M. R. Trabue who has just accepted a professorship at the University of North Carolina. Mr. Reynolds has acted as field secretary of the Alumni Association for the past year. All checks for Alumni Association dues should be made payable to Mr. R. G. Reynolds, Treasurer, and should be sent to him at Teachers College, 525 West 120th Street, New York City. Mr. Reynolds will carry on the duties of the office until a new treasurer is elected by the Association.

JOIN THE ALUMNI ASSOCIATION

Why join the Alumni Association? Membership in the Alumni Association entitles you to vote for an Alumni Trustee and thus participate in the administration of the College. The annual membership fee insures your getting the TEACHERS COLLEGE RECORD for a year without additional charge, and the alumni notes published in the RECORD will keep you in touch with the various activities of the alumni in the field. If there is a Teachers College club in your vicinity, you will surely wish to belong to it; membership in a local Teachers College club gives you membership in the general Alumni Association, together with a subscription to the RECORD, without additional cost to you.

Why not join the Alumni Association? You are eligible if you have attended Teachers College for one term or more; the six weeks' summer session counts as one term. The annual fee of $1.50, which will bring you membership in the Association and a year's subscription to the TEACHERS COLLEGE RECORD, will be money well spent—

the one investment which every teacher who is a former student of Teachers College cannot afford not to make.

To join, send $1.50 to the Treasurer of the Alumni Association, Teachers College, 525 West 120th Street, New York City, or to the Treasurer of a local Teachers College club if there is one in your vicinity. Be sure to state clearly the address to which you wish the TEACHERS COLLEGE RECORD sent, and keep the office of the Field Secretary advised of any change of address in order that you may receive all copies of the RECORD. You will confer a favor on the Association by adding ten cents to out-of-town checks, to pay for collection.

ADDRESSES FOR THE ALUMNI FILE

The office of the Field Secretary is constantly being called upon for alumni addresses for every conceivable purpose. College officials desire the correct address of some former student in order that a teaching position may be brought to his or her attention; personal friends send letters to the office constantly to be addressed and forwarded by the Field Secretary; the Alumni Association itself desires frequently to send printed material to the former students of the College. To keep up-to-date addresses for a profession such as that which Teachers College serves is a difficult task. The individuals of few professions move about so frequently as do those of the teaching profession. A mailing list, to be of any value at all, should be up-to-date; and, in order for the office of the Field Secretary to serve the alumni with a correct mailing list, their coöperation is absolutely essential. The list can be kept up to date only through the individual coöperation of every former student of Teachers College.

Won't you keep it in mind to notify the Field Secretary of the Alumni Association as soon as your address for the coming school year is definitely determined upon? He will see that all the departments in the College interested in the correct addresses of the alumni are notified of your new address. Your coöperation in this is essential and will be appreciated.

THE ALUMNI HANDBOOK

The Alumni Association has had published an Alumni Handbook under the title of "Teachers College Service." This handbook is for free distribution to the alumni and former students of the College.

It sets forth the various forms of service which Teachers College offers its students after they have left it for work in the field. It takes up the Alumni Association, its organization, membership, fees, and other details; it outlines the method of organizing local Teachers College clubs; and sets forth the many ways in which the office of the Field Secretary of the Alumni Association can serve alumni in the field through its mailing list, its assignment of college speakers, the Alumni Conferences, and the Alumni Trustees. The handbook discusses in turn the Bureau of Educational Service, the Bureau of Publications, the service of the extramural courses, the service of Bryson Library, the Institute of Educational Research, and the service of the Welfare Director. It outlines the late afternoon and Saturday courses and those of the summer session.

The Alumni Handbook has been prepared with great care and at some expense, and it is at the disposal of any former student of the College who cares to write to the Field Secretary of the Alumni Association for it.

DR. TRABUE GOES TO UNIVERSITY OF NORTH CAROLINA

Dr. M. R. Trabue has resigned as director of the Bureau of Educational Service at Teachers College to accept an appointment as professor of education at the University of North Carolina, Chapel Hill, N. C.

Dr. Trabue received the degree of Doctor of Philosophy from Teachers College in 1915. That same year he was appointed assistant professor of education. He served during the war as captain, and upon leaving the service was appointed director of the Bureau of Educational Service. His work in the Bureau and his long service as treasurer of the Alumni Association have made his name a familiar one to the alumni of the College.

Dr. Trabue has added many valuable contributions to the field of educational measurements, among them the Trabue Completion-Test Language Scales, the Nassau County Composition Scale, the Abbott-Trabue Poetry Scales, and the Trabue Mentimeters.

MR. REYNOLDS APPOINTED DIRECTOR OF BUREAU OF EDUCATIONAL SERVICE

Mr. Rollo G. Reynolds has been appointed director of the Bureau of Educational Service of Teachers College to succeed Dr. M. R. Trabue who has resigned to accept a professorship in education at the University of North Carolina. For the past year Mr. Reynolds has served the alumni as field secretary of the Alumni Association and has taken an active part in the work of the committee appointed by the Alumni Association to raise funds for the new library building for Teachers College. The scope of the Bureau has been enlarged so that it now includes the appointment division which assists in securing positions for the alumni of Teachers College, the information division which attempts to assist alumni and others engaged in educational work by answering questions on professional matters in education, the alumni division which takes care of the alumni service formerly rendered by the Field Secretary's office, and a general publicity division for the College. Mr. Reynolds received his Bachelor's degree from Dartmouth College in 1910 and his Master's degree from Teachers College in 1920. He has recently completed the requirements for the degree of Doctor of Philosophy, specializing in education at Teachers College.

DR. ELLIOTT TO HEAD PURDUE UNIVERSITY

Dr. Edward Charles Elliott, chancellor of the University of Montana, at Missoula, has been elected as the new president of Purdue University, Lafayette, Indiana. Dr. Elliott received his Ph.D. degree at Teachers College in 1905.

MR. HUNT ELECTED AT UNIVERSITY OF PITTSBURGH

Mr. Charles W. Hunt has accepted the appointment as director of extramural instruction and professor of education at the University of Pittsburgh. Mr. Hunt resigned as vice-principal of the Horace Mann School in the fall of 1921 to continue his graduate work at Teachers College.

MR. RANDOLPH ELECTED AT UNIVERSITY OF WASHINGTON

Mr. Edgar D. Randolph, associate in the department of normal school education at Teachers College, has been elected professor of educational sociology at the University of Washington, Seattle, Washington. Mr. Randolph has just completed the requirements for the degree of Doctor of Philosophy.

DR. SMITH GOES TO UNIVERSITY OF PITTSBURGH

Dr. H. B. Smith has accepted the appointment as head of the department of vocational education at the University of Pittsburgh. Dr. Smith received his Ph.D. degree from Teachers College this June. Since 1917 he has been with the Federal Board of Vocational Education as regional director for New England and the Middle States.

MISS CARLSON ACCEPTS INTERESTING APPOINTMENT

Miss Gudrun Carlson has been appointed home economics expert in

the publicity department of the Institute of American Meat Packers. Miss Carlson will have her headquarters in Chicago and will be engaged in educational work along home economics lines for the Institute. During the past year Miss Carlson has been an assistant in the department of foods and cookery at Teachers College.

DR. STENQUIST ACCEPTS POSITION IN BALTIMORE

Dr. John L. Stenquist has been appointed director of educational measurements at Baltimore, Maryland. Dr. Stenquist during the past year has been assistant director of reference, research, and statistics for the Board of Education of the city of New York.

DR. TOUTON GOES TO THE UNIVERSITY OF SOUTHERN CALIFORNIA

Dr. Frank Charles Touton has accepted an appointment as associate professor in education at the University of Southern California, Los Angeles. Dr. Touton received his Ph.D. from Teachers College in 1919.

RECENT ALUMNI APPOINTMENTS

The following appointments of Teachers College alumni are announced by the Bureau of Educational Service.

Abbott, Marguerite Frances—Instructor in household economics, Margaret Morrison Division, Carnegie Institute of Technology, Pittsburgh, Pa.

Addison, Charlotte—Head dietitian, Grasslands Hospital, Valhalla, N. Y.

Agnew, Beulah Irene—Instructor in English, South Dakota State College, Brookings, S. D.

Allen, Margaret Frances—Critic in kindergarten, Willimantic State Normal School, Willimantic, Conn.

Anderson, A. Marie—Instructor in methods and practice for teachers of art and design, University of Illinois, Urbana, Ill.

Arnett, Mabel—Instructor in technical English, State Normal School, Salem, Mass.

Arnold, Clio—Instructor in history, High School, Ashtabula, Ohio.

Arthur, Helen—Instructor in physical education, Public Schools, Grand Rapids, Mich.

Avent, Joseph E.—President, Martha Washington College, Abingdon, Va.

Baker, Ethel H.—Instructor in English, Emma Willard School, Troy, N. Y.

Baker, Frances—Instructor in physical education, Burnham High School for Girls, Northampton, Mass.

Baldridge, G. Bruce—Instructor in history and economics, Hendrix College, Conway, Ark.

Baldwin, Bertha M.—Woman's Page, *New York Tribune*, New York City.

Barry, Ruth H.—Instructor in mathematics, Pelham High School, Pelham, N. Y.

Bear, Jennie R.—State supervisor of home economics, Delaware.

Bellows, Jane—Instructor in physical education, Y.W.C.A., New York City.

Berry, Aida—Teacher of fourth grade, Public School, Leonia, N. J.

Berry, Emilie—Kindergarten teacher, Society for the Relief of Half Orphan and Destitute Children, New York City.

Best, Christopher T.—Instructor in mathematics, High School, Winnipeg, Manitoba, Canada.

Billings, Grace—Assistant manager, Pequot Coffee House, New York City.

Bishop, Helen A.—Assistant professor, Kansas State Agricultural College, Manhattan, Kan.

Blake, Pauline—Instructor in design and allied subjects, Minneapolis Institute of Art, Minneapolis, Minn.

Blakesley, Eloise M.—Head of health department, Public Schools, Durham, N. C.

Blood, Pearl—Teacher, Social Motive School, New York City.

Boas, Gertrude M.—Teacher of fifth grade, Public School, Hackensack, N. J.

Bolander, Karl S.—Director, Fort Wayne Art School and Museum, Fort Wayne, Ind.

Bolles, George A.—Supervising principal, High School, Belfast, N. Y.

Bostwick, Winifred F.—Instructor in English and history, High School, Verona, N. J.

Bowman, Grover C.—Superintendent of schools, North Adams, Mass.

Bowman, Sarepta—Instructor in English, Jacobi School, New York City.

Bracken, Esther—Instructor in nutrition and dietetics, University of Tennessee, Knoxville, Tenn.

Brasie, Muriel—Instructor in design and clothing, Stout Institute, Menomonie, Wis.

Brewer, Ellen D.—Head of home economics department, Meredith College, Raleigh, N. C.

Brice, Lilian Kirkland—Instructor in household arts, Hood College, Frederick, Md.

Bridgford, Constance—Teacher of third grade, Moraine Park School, Dayton, Ohio.

Brooke, Louise Frances—Primary teacher, Yale School, Youngstown, Ohio.

Bryan, Noah Rosenberger—Associate professor of mathematics, University of Maine, Orono, Me.

Buck, Avilda J.—General secretary, Y.W.C.A., Iowa State University, Iowa City, Iowa.

BuDahn, L. A.—Superintendent of schools, Asbury Park, N. J.

Bundy, Grace A.—Instructor in French, High School, Scarsdale, N. Y.

Campbell, Mary E.—Instructor in Latin, Vassar College, Poughkeepsie, N. Y.

Carlisle, Lois—Instructor in Latin, College of Industrial Arts, Denton, Tex.

Carson, Hulsey, Assistant professor of psychology, University of Kansas, Lawrence, Kan.

Carter, Alice M.—Home demonstration agent, Roanoke Rapids, N. C.

Chamberlain, Orlo R.—Director of physical education, Rye Country Day School, Rye, N. Y.

Chamblin, Julia V.—Teacher of elementary English, Wheeler School, Providence, R. I.

Chase, Sara E.—Principal, Kensington Avenue School, Springfield, Mass.

Churton, Florence—Instructor, Southern Branch of the University of California, Los Angeles, Calif.

Clark, Caspar C.—Principal, Junior High School, Ironwood, Mich.

Clark, Zelma E.—Director, Martha Cook Hall, University of Michigan, Ann Arbor, Mich.

Coe, Dorothy—Teacher of English, Public School, Winnetka, Ill.

Comfort, Lucy M.—Instructor in foods and cookery, Russell Sage College, Troy, N. Y.

Conlan, Mary Merol—Instructor in Latin and French, Central High School, Duluth, Minn.

Cooper, Catherine—Associate professor, Utah Agricultural College, Logan, Utah.

Cooper, Gloria O.—Instructor in chemistry, State Normal School, Indiana, Pa.

Coyner, Martin Boyd—Acting associate professor of education, Washington and Lee University, Lexington, Va.

Crooks, Helene M.—Instructor in French, Low and Heywood School, Stamford, Conn.

Crouch, Eugene Morgan—Superintendent of schools, Mooresville, N. C.

Cundiff, Esther Mae—Instructor in clothing, Teachers College, New York City.

Currier, Virginia M.—Instructor in art, Ohio University, Athens, Ohio.

Dalgliesh, Alice—Demonstration kindergarten teacher, Teachers College, New York City.

Davis, A. Carolyn, Instructor in history, High School, Wellsboro, Pa.

Dean, Mrs. Anna S.—Teacher, Public School, Bethlehem, Pa.

DeGraff, Thelma B.—Instructor in Latin, Ethical Culture High School, New York City.

Deming, Mary L.—Teacher and supervisor of home economics, Public Schools, New York City.

Dimmick, Rex W.—Principal, Elementary School, Ridgefield Park, N. J.

Dongan, Viola—Kindergarten director, Public Schools, Springfield, Mass.

Dorsey, Jane—Instructor in music, Scarborough School, Scarborough, N. Y.

Doub-Kerr, W. C.—Instructor in French, Teachers College, New York City.

Dreitzler, Sara Bernita—Assistant professor of English and assistant dean of women, Illinois State Normal University, Normal, Ill.

DuBois, Nellie A.—Instructor in fine arts education, College of Education, Ohio University, Athens, Ohio.

Eberly, S. W.—Instructor in modern European history, Senior High School, Trenton, N. J.

Edwards, Florence B.—Kindergarten director, Kindergarten Training School, Cleveland, Ohio.

Eichenbaum, Nellie—Dietitian, Beth Israel Hospital, New York City.

Ek, Wilma—Instructor in cooking and sewing, High School, Bethlehem, Pa.

Emerson, Mildred—Instructor in music, Public Schools, Durham, N. C.

Evans, Florence—Instructor in fine arts, High School, Cleveland Heights, Ohio.

Fair, Jessie—Supervisor of instruction, Public Schools, Mansfield, Ohio.

Fairbairn, Leta—Kindergarten teacher, Summit School, St. Paul, Minn.

Fancher, Isabel—Instructor in domestic science, High School, Katonah, N. Y.

Faries, Elizabeth—Teacher, True Light Middle School, Canton, China.

Farrar, Nell—Dean of women, North Carolina College for Women, Greensboro, N. C.

Forest, Ilse—Teacher, Children's School, New York City.

Forman, Eleanor B.—Head of department of education, Salem Academy and College, Winston-Salem, N. C.

Fowler, Marie Belle—Lower elementary supervisor, Public Schools, Kalamazoo, Mich.

Fowlkes, John Guy—Assistant professor of education, University of Wisconsin, Madison, Wis.

Frederick, Mary C.—Instructor, Cleveland School of Education, Cleveland, Ohio.

Freeland, Daisy Taylor—Teacher, Hanahanoli School, Honolulu, Hawaii.

Freeman, L. N.—Supervising principal, Public Schools, Moravia, N. Y.

Fry, Ambrose—Supervising principal, Public Schools, Piermont, N. Y.

Fuller, R. Marie—Instructor in home economics, Pine Manor, Wellesley, Mass.

Fulmer, Herman Kyle—Instructor in mathematics, Georgia School of Technology, Atlanta, Ga.

Gates, Rhea—County home demonstration agent, University of Illinois, Urbana, Ill.

Gleason, Helen—Assistant professor, University of Montana, Missoula, Mont.

Glendon, Harriet—Assistant professor, Margaret Morrison Division, Carnegie Institute of Technology, Pittsburgh, Pa.

Graham, Ruth—Instructor in sewing, Pennsylvania State College, State College, Pa.

Grau, Erna—Instructor in physical education, School of Education, Cleveland, Ohio.

Greene, Miriam S.—Instructor in household arts, Junior High School, West New York, N. J.

Griswold, Sylvia M.—Instructor, North Carolina College for Women, Greensboro, N. C.

Groves, Mary Edna—Supervisor of home economics, Indian schools of United States.

Hahn, Julia L.—Instructor in kindergarten-primary methods, Normal Training School, New Orleans, La.

Haines, S. Deborah—Head of home economics department, State Normal College, Ypsilanti, Mich.

Hall, Laura M.—In charge of commons, New York University, New York City.

Harkness, Beulah C.—Supervisor of music and drawing, High School, Port Jefferson, N. Y.

Harris, Agnes E.—Dean of women, Alabama Agricultural College, Auburn, Ala.

Hasseltine, Helen L.—Music supervisor, Public Schools, Mooresviller, N. C.

Haydock, Emily G.—Head of department of home economics, High School, Reading, Pa.

Henderson, Mildred—Instructor in household arts, Concordia College, Moorhead, Minn.

Henser, Clare—Instructor in foods and cookery, North Carolina College for Women, Greensboro, N. C.

Hepburn, Clara—Instructor in physical education, State Normal School, Montclair, N. J.

Hickok, Beulah G.—Instructor in English, Packer Collegiate Institute, Brooklyn, N. Y.

Hickox, Edward J.—Director, Springfield College, Springfield, Mass.

Hill, Edith Margaret—Kindergarten teacher, Lincoln School, Cranford, N. J.

Hillyar, Elizabeth—Instructor in fine arts, Mt. Vernon Seminary, Washington, D. C.

Hiner, Frank P.—Vocational counselor and teacher of vocational guidance, University of Maryland, Baltimore, Md.

Hodgdon, D. R.—Principal, Columbus School, New Rochelle, N. Y.

Holden, Dorothy B.—Critic, North Carolina College for Women, Greensboro, N. C.

Howell, Nathan R.—Principal, Elementary School, East Moriches, N.Y.

Hunt, A. Isabel—Social director, Chadbourne Hall, University of Wisconsin, Madison, Wis.

Hunton, Grace—Dean of women, Thiel College, Greenville, Pa.

Hussey, Marguerite M.—Director of physical education, Fresno State Teachers College, Fresno, Calif.

Jackson, Mary Elizabeth—Teacher of cookery, Public Schools, New Brunswick, N. J.

Jackson, Wesley—Principal, Union Free School, East Northport, N. Y.

Jakob, Philip Adam—Vice-Principal, Meriden High School, Meriden, Conn.

Janney, Alameda—Assistant professor of history, Toledo University, Toledo, Ohio.

Jessup, Helen—Superintendent, Ophthalmic Hospital, New York City.

Jewitt, Olver—Instructor in the High School, Scarsdale, N. Y.

Johnson, Ruth M.—Instructor in science, Mary C. Wheeler School, Providence, R. I.

Jones, Galen—Principal, Junior High School, Sapulpa, Okla.

Jordt, Elsie B.—Instructor in history, High School, Durham, N. C.

Keech, James Arthur—Instructor in science, High School, Yonkers, N. Y.

Kennard, Elaine M.—Teacher of mathematics and science, Lenox School, New York City.

Kennedy, Lillian Sarah—Instructor, Margaret Morrison Division, Carnegie Institute of Technology, Pittsburgh, Pa.

Kersey, Emily—Instructor in home economics, High School, Muncie, Ind.

Kirk, H. H.—Superintendent of schools, Jamestown, N. D.

Kirkley, J. A.—Instructor in English, Alabama Polytechnic Institute, Auburn, Ala.

Klepper, Ruth—Supervisor of music, Public Schools, Excelsior Springs, Mo.

Koehring, Dorothy—Kindergarten teacher, Public School, Lawrence, Kan.

Lacy, Mary—Instructor in fine arts, University of Washington, Seattle, Wash.

LaFetra, Emma Jane—Supervisor of music, Public Schools, Redbank, N. J.

Lawrence, Martha—Instructor in science, Hosmer Hall, St. Louis, Mo.

Laws, Marion B.—Teacher of fourth grade, Mary C. Wheeler School, Providence, R. I.

LeBrun, Pierre N.—Instructor in mathematics, Tome School, Port Deposit, Md.

Leet, Alice B.—House director, Children's School, New York City.

Leete, Constance G.—Instructor in French, Ohio University, Athens, Ohio.

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